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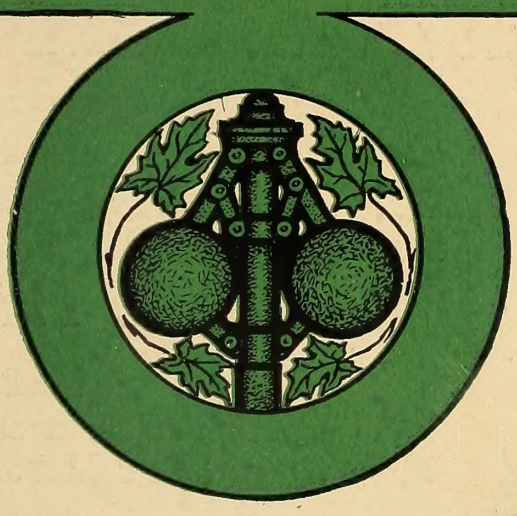
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Featuring Welland's Industries

Vol. XVIII., No. 7 NOVEMBER, 1917 $2.00 per Year

INDUSTRIAL CANADA



WE count it a great privilege to have been selected to prepare and place the Dominion wide advertising campaign for the British Red Cross appeal on "Our Day," October 18th.

J. J. GIBBONS, LIMITED

General Advertising Agents

MONTREAL TORONTO WINNIPEG

Cables—Gibjay, Toronto Codes—ABC, 5th Edition

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.

HEAD OFFICE TORONTO · BRANCH OFFICES, MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC.

FOR POLISHING USE CORALOX

(AN ELECTRIC FURNACE CORUNDUM)

Ask us for Free Trial Sample — Made in Canada

D. A. BREBNER LIMITED, HAMILTON, ONT.

AUTOMOBILE PARTS
DROP FORGINGS

D&SCo. Quality & Service

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111
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V.18
no.7-12

We have erected and are now operating

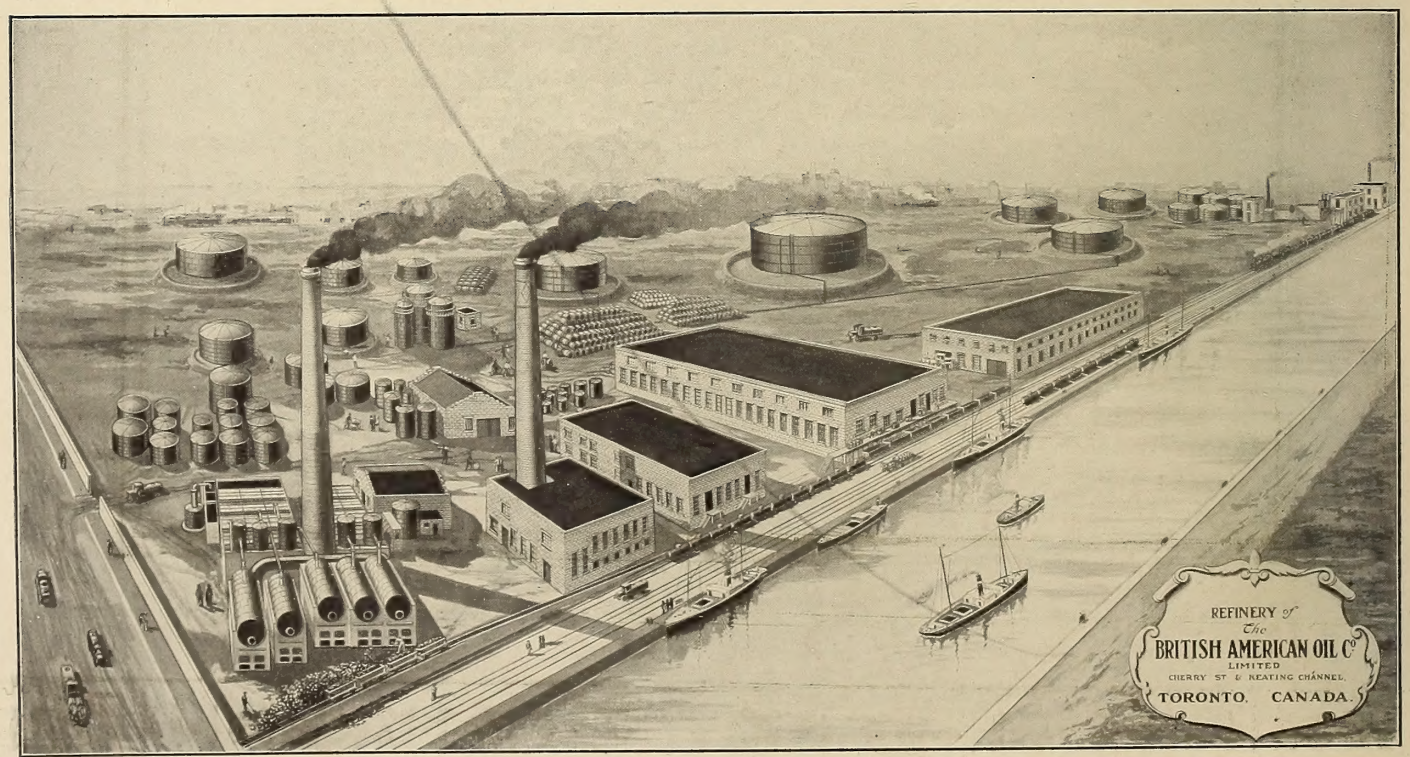
THE LARGEST COMMERCIAL DROP FORGE PLANT IN CANADA

We are equipped to handle large forging contracts.
This expansion also increases our stamping facilities.
We stand by our Motto: Quality and Service.

SHEET METAL WORK
GENERAL STAMPINGS

DOMINION FORGE & STAMPING CO., LIMITED
Walkerville - Ontario

THE BRITISH AMERICAN OIL CO., LIMITED



Head Office: ROYAL BANK BUILDING, TORONTO — Branches: Montreal, Ottawa, London, Windsor, Etc.

You can't make a whistle from a pig's tail---

for the necessary materials are not there

---BUT you can make permanently tight and always serviceable pipe connections with Dart Union Pipe Couplings: for the joint is bronze to bronze, a non-corroding, non-deteriorating metal.

YOUR JOBBER SELLS THEM

DART UNION CO., LIMITED, TORONTO

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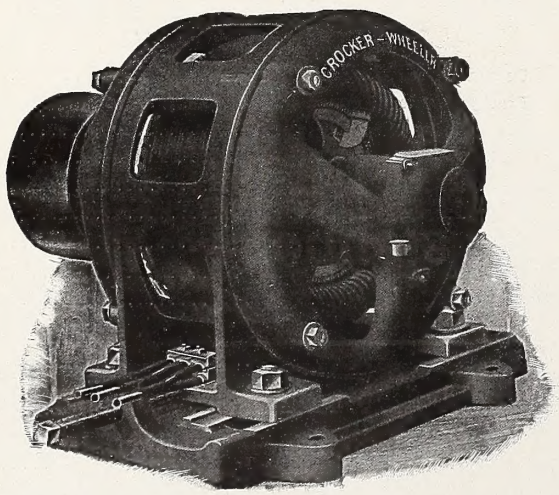
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THE DESIGN OF

CROCKER-WHEELER INDUCTION MOTORS

INCLUDES:

Heavy Shafts

Large Journals

High Power Factor

Excellent Efficiency

They have many other desirable features; Bulletin 155 describes them.

THE CANADIAN CROCKER-WHEELER CO., Limited

MANUFACTURERS AND ELECTRICAL ENGINEERS

Head Office and Works: St. Catharines **District Offices: Montreal, Toronto, Vancouver**



The Presto-Phone—the Canadian Automatic that requires no Switchboard operator

An Automatic Telephone System
For Office and Factory

This is an essential in any modern industrial establishment, because it means a direct saving of time. It puts the heads of all departments in touch with one another, saving the time of all.

The Presto-Phone

is an "All-Canadian" system, invented and made in Canada. The cost of installation is low and the up-keep costs practically nothing. And it has the distinct advantage that it does not in the least interfere with your outside lines.

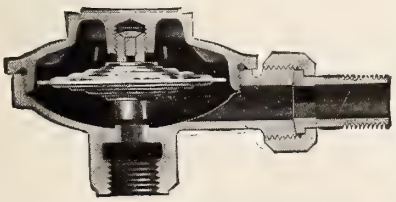
Write for Fully Descriptive Booklet

Canadian Independent Telephone Co., Limited
263 Adelaide Street West, Toronto

The DUNHAM
System of Heating

Installed in Factory, Office, Warehouse, Home or Public Buildings, makes the fuel last longer, and brings lasting heating comfort.

The essential feature of the Dunham System of Heating is the Dunham Radiator Trap, attached to the return end of each radiator.



DUNHAM RADIATOR TRAP

It automatically passes all air and water into the return piping system and closes when the radiator is full of steam. This means economy.

There are no air valves to adjust, and merely a turn of the handle on the control valve admits steam, which quickly fills the radiator. Why? Because the air is allowed to escape quickly through the Dunham Trap.

The Dunham Radiator Trap is simple, cannot get out of order, is automatic on a wide range of pressure and positive in operation. Made of the best steam metal.

The Dunham System will make use of all **exhaust steam** in your plant, which means turning **waste** into **profit.**

Responsible Heating Contractors everywhere are familiar with the Dunham System of Heating. Put your problems up to us by writing direct or through the Heating Contractor who handles your work. Your decision now will insure heating satisfaction this winter.

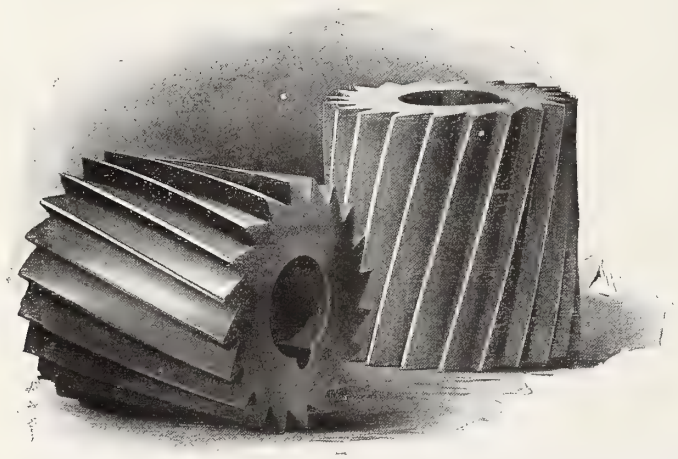
C. A. DUNHAM CO. LTD., TORONTO, CANADA

OTTAWA—214 Booth Building
HALIFAX—McCurdy Building
MONTREAL—Room 20, 11 St. Sacrament St.
VANCOUVER—520 Duncan Building
WINNIPEG—405 Tribune Building

SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

PRATT & WHITNEY CO.
of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM
MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

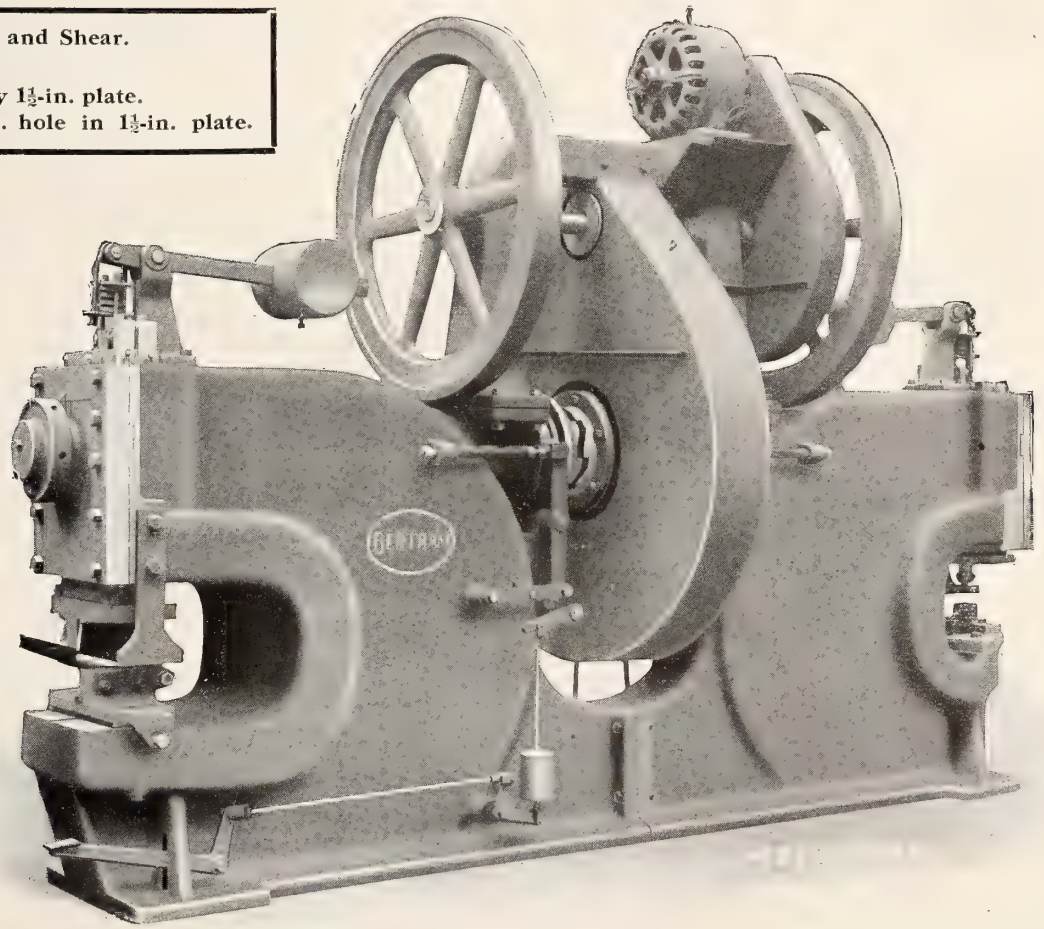
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

Dundas - Ontario - Canada

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.

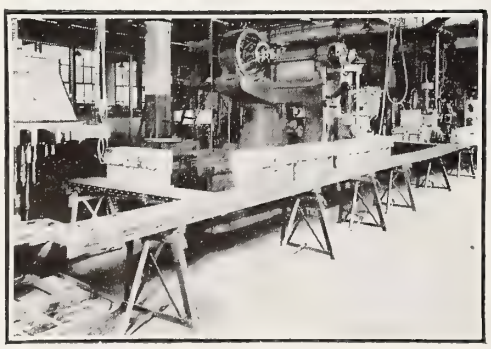


We Can Solve Your Handling Problem









Have We Mentioned It Below?

YES—You can convey cement and other commodities in bags on Mathews Gravity Conveyors, with pallets. You can use the same conveyor for handling brick and tile as well. Write for Bulletin No. 51.

YES—You can use Mathews Automatic Inclinable Elevators in conjunction with Mathews Gravity Conveyors. They receive and discharge automatically boxes, crates and barrels. Write for Bulletin No. 41.

YES—You can convey pig iron, copper and brass ingots and lead on Mathews Gravity Carriers at a saving of 40% over any other method. Write for Bulletin No. 31.

YES—You can handle heavy castings, forgings and machine parts on our heavy type of conveyors. Write for our bulletin on handling heavy material, No. 21.

Canadian Mathews Gravity Carrier Co., Limited
484 Richmond St. West, Toronto, Ont.

CARBIDE



Carbide of Calcium, made by the CANADA CARBIDE COMPANY, Limited, is packed in Green Drums.

We make a first grade only

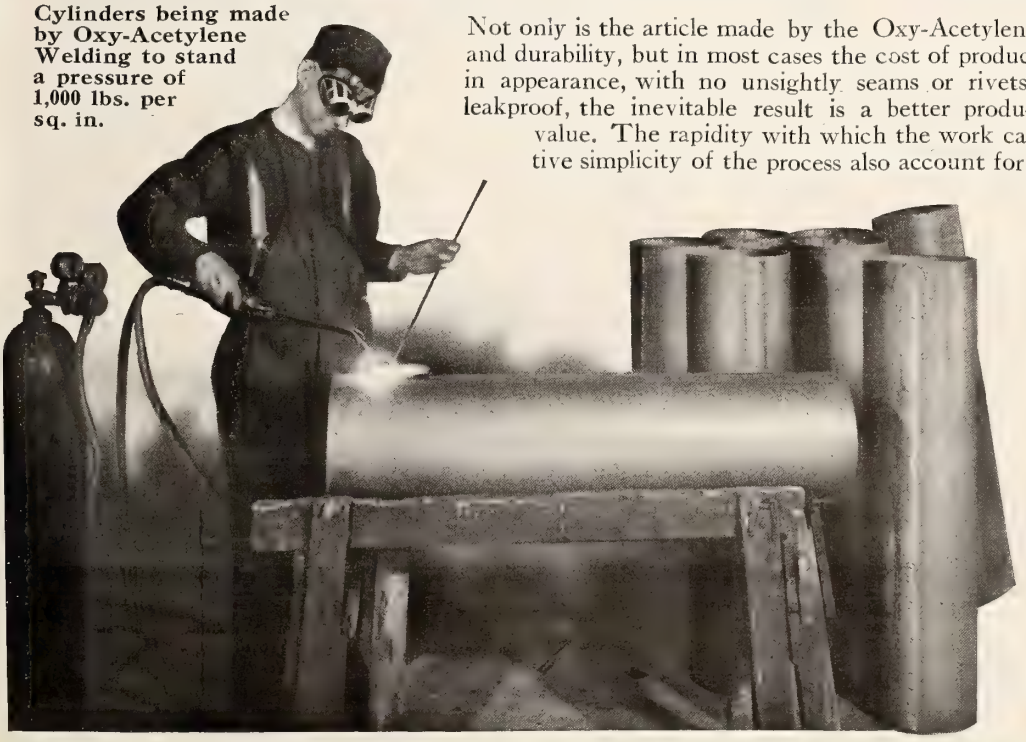
Where pure ACETYLENE is required you must have first grade CARBIDE.

The best costs you no more and gives you better results.

Works:
St. Catharines, Ont.
Shawinigan Falls
Quebec

Canada Carbide Company, Limited
MONTREAL - CANADA

Oxy-Acetylene Welding Cheapens and Improves the Process of Manufacture



Cylinders being made by Oxy-Acetylene Welding to stand a pressure of 1,000 lbs. per sq. in.

Not only is the article made by the Oxy-Acetylene Process of greater strength and durability, but in most cases the cost of production is reduced. Being neater in appearance, with no unsightly seams or rivets, and absolutely airtight and leakproof, the inevitable result is a better product of the highest marketable value. The rapidity with which the work can be done and the comparative simplicity of the process also account for its universal adoption for all industrial metal construction work.

Is Your Plant Fully Equipped?

In practically every Industry there is some profitable and advantageous use for an Oxy-Acetylene Welding Outfit. Its uses are manifold. Write to-day and have us tell you how you may benefit.

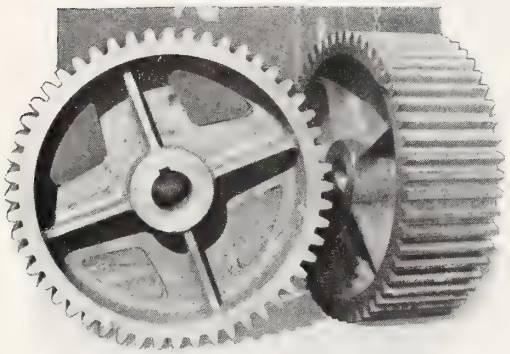
L'AIR LIQUIDE SOCIETY

Canadian Factories:
TORONTO, MONTREAL, WINNIPEG
HALIFAX: Under construction

Cut Gears



Made complete or cut only.

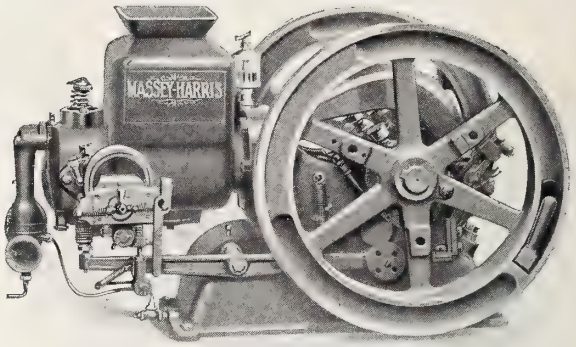


Years of experience as Cut Gear Specialists enables us to offer you real Gear Service at a reasonable price.

Write us for quotations.

Hamilton Gear & Machine Co.

Van Horne Street - TORONTO



MASSEY-HARRIS GASOLINE ENGINES

IN choosing an Engine, great care should be exercised. It is in use the year round, and for many years. The cost of operation and upkeep should be considered ahead of the first cost, bearing in mind that an Engine which is cheap only in the matter of price, is pretty certain to be an expensive proposition in the long run, with high fuel consumption, big repair bills and unsatisfactory service.

The Massey-Harris Engine is Famous for Reliability and Economy of Operation. It can be depended on the year round in any kind of weather, and the cost of maintenance is very low—it is easy on the gasoline and will be found exceptionally durable.

When you buy a Massey-Harris Engine, you buy more than an Engine—you buy years of satisfactory service — power when you want it and at a very low cost per horsepower. Stationary or portable, 2 to 15 horsepower.

MASSEY-HARRIS CO., Limited

Head Offices—Toronto, Canada

—Canadian Branches at—

Montreal Moncton Winnipeg Regina Saskatoon
Swift Current Yorkton Calgary Edmonton

AGENCIES EVERYWHERE

OPPORTUNITY BECKONS YOU TO WELLAND

The Growing Industrial Centre Offers Great Inducements to Manufacturers

Welland is an unrivalled point for the location of industrial enterprises of all kinds. It is a natural centre for the location of manufacturers and is conceded by the captains of industry to be blessed with a Chicago-like future.

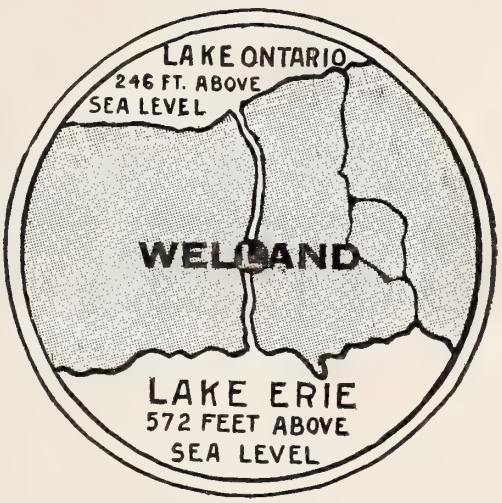
Railroad Advantages

On account of close proximity to the border, Welland is in the Buffalo switching group and takes the Buffalo rate from the East and South and enjoys quick delivery on all raw materials imported from the United States.

Seven Railroads

Grand Trunk—Michigan Central—Toronto, Hamilton and Buffalo—Canadian Northern—Pere Marquette—Canadian Pacific—Wabash. Switches or spurs are constructed on the basis of cost, the manufacturing firm paying the cost price and the railroads refunding a fixed sum for every car switched over the spur until the full amount is rebated. This rule prevails throughout the entire Dominion of Canada. Rates from Welland to the North-West and Pacific Coast, all rail, are the same as from all other manufacturing points in Eastern Canada lying between the Detroit River and Montreal.

The Welland Way



THE SHIP CANAL THAT WILL CARRY MORE VESSELS & MORE TONNAGE THAN PANAMA

Ship Canal Will Carry More Vessels and Tonnage Than the Panama Canal

Welland is situated on the Welland Canal, the great Marine highway, between tide water and the Canadian North-West with daily freight service both ways.

The canal carries boats of fourteen-foot draft, but work has now begun on canal enlargement to the amount of fifty-million dollars to provide for a twenty-five foot draft.

Distinct Advantages

In these days of keen competition water transportation has become an absolute necessity to manufacturers, and Welland holds the distinct position of being the only municipality in the entire Dominion of Canada, owning and operating its own municipal wharf, accessible by all shippers and steamboat lines alike, without charges of any kind.

Welland is a port of entry for all upper lake lines of steamers giving low rates and quick dispatch, the advantages of which are enormous. Not even the World-renowned Panama will carry the number of ships and same amount of tonnage as the Welland Canal.

CHEAPEST POWER IN CANADA

Welland Uses More Hydro Power Than Any Ontario City

Welland is the industrial hub of the Niagara Peninsula, where an unlimited amount of electric power is available and sold at competitive prices, owing to the numerous power companies represented there.

Every factory in Welland is driven by electric power supplied by the Ontario Power Co. of Niagara Falls, which is about twelve miles east of Welland, or from the Dominion Power Co. of De Cew Falls, which is about twelve miles north of Welland. The fact that we have competitive companies operating in this district gives us competitive prices on power. The average price per horse power per year for twenty-four hour service is about fifteen dollars. The price depends entirely upon the quantity of power used and the load factor. For ten-hour service one class of meter will be installed and the power will be sold on a kilowatt basis. Our present concerns pay an average of about three-quarters of a cent per kilowatt hour. The large plants that use twenty-four hour power are securing a rate of about $13.50 per H.P. per annum.

Welland's Present Hydro Consumption is Over 83,000 H.P.

Welland's Pay Roll Grows Bigger Even in War Time

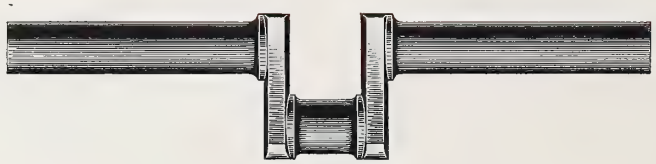
Welland has strong combination of advantages. Send for booklet

LOUIS BLAKE DUFF

Industrial Commissioner - - - - WELLAND, CANADA

Canada Foundries and Forgings
LIMITED

Welland and Brockville, Ontario



IRON AND STEEL FORGINGS
of every description

Four Plants—Capacity 5,000 tons per month

Steam and Drop Equipment, 16,000 lbs. down

Send Blue Prints or Models to Welland for quotations.



Complete stock of turnbuckles and machine wrenches carried for immediate delivery.

THE HOME OF P-H WROUGHT IRON PIPE



PAGE-HERSEY IRON TUBE AND LEAD CO LIMITED

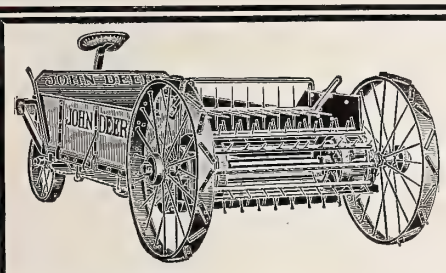
Head Office:
TORONTO, CANADA

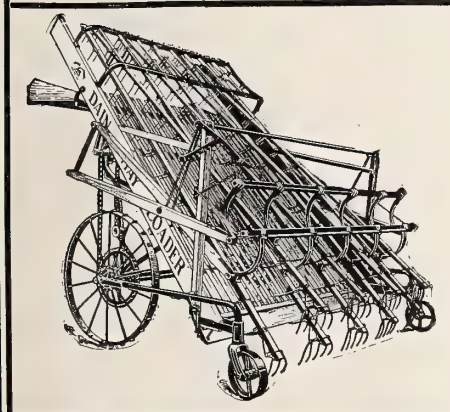
P-H

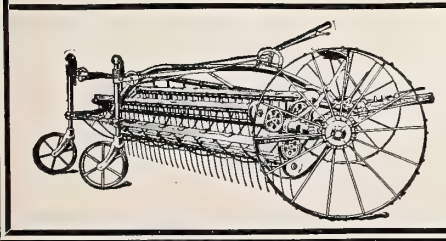
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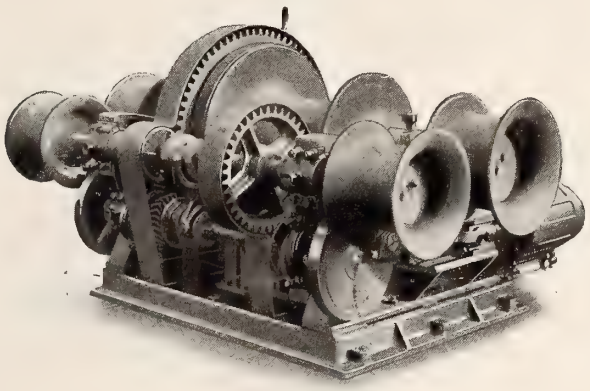
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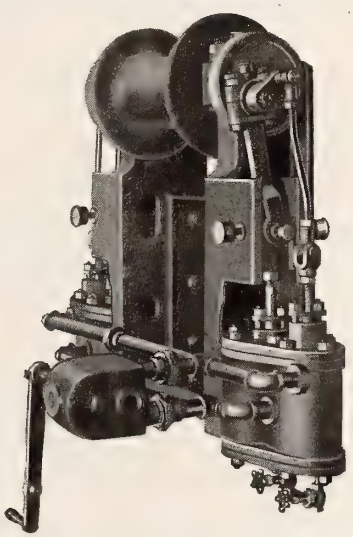
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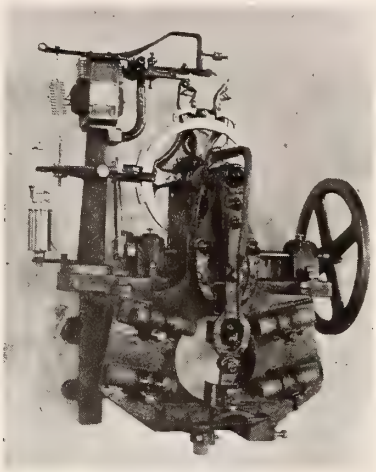
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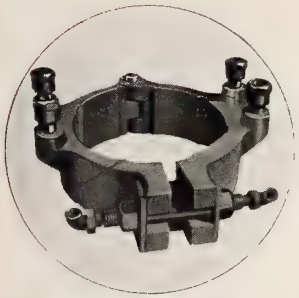
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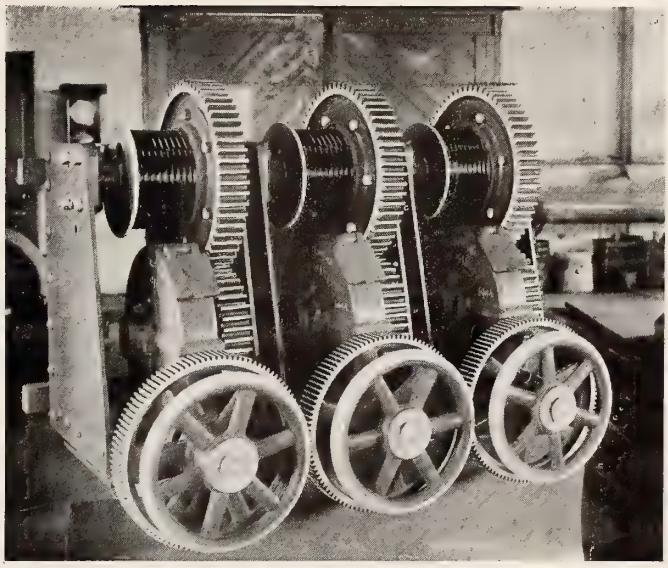
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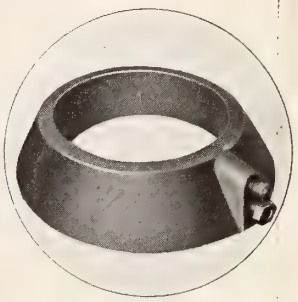
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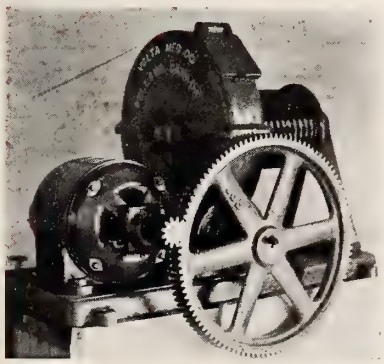
Electrode Holder



Triple Winch for Steel Furnaces



Roof Cooler Ring



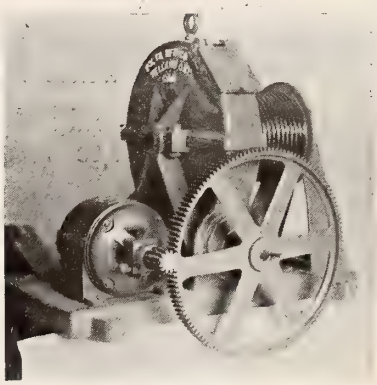
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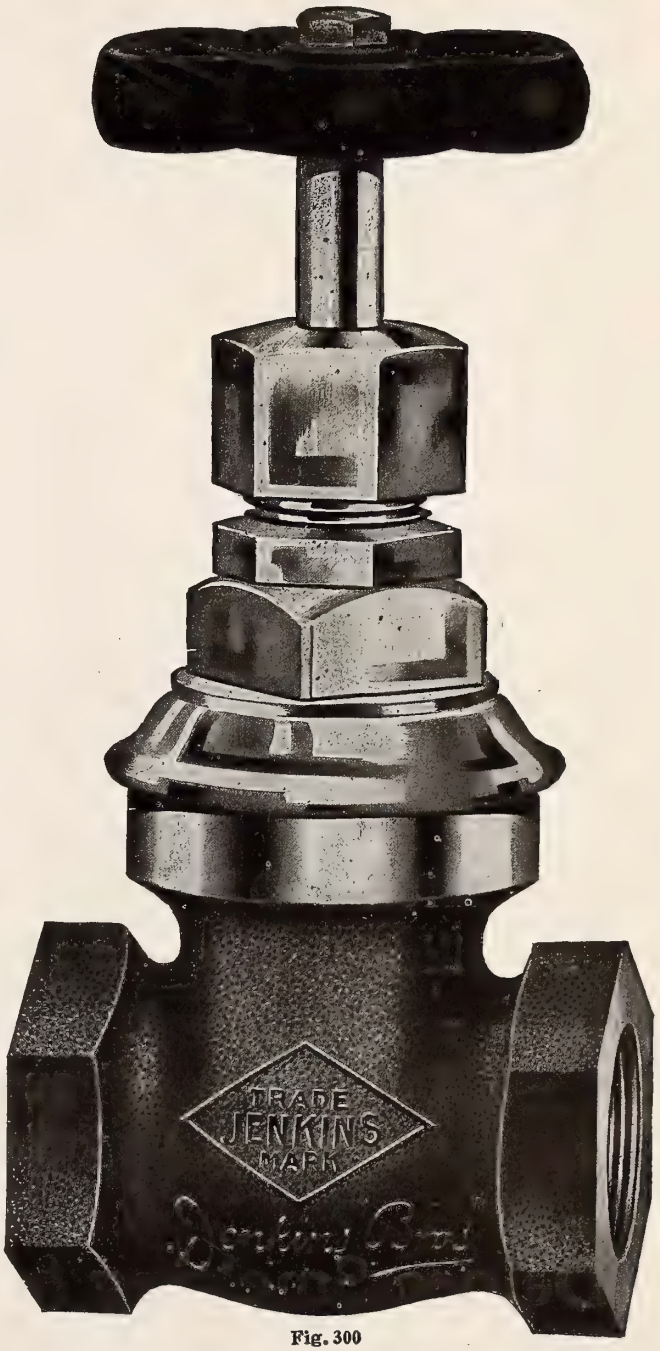


Fig. 300

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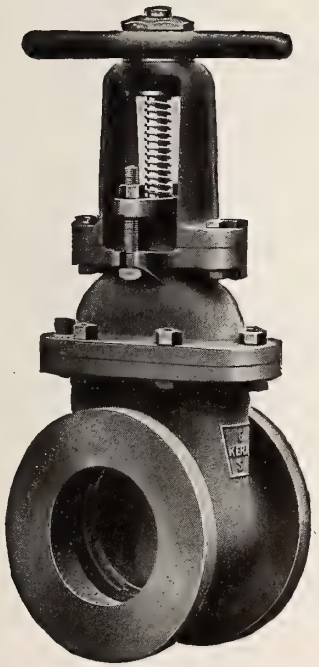
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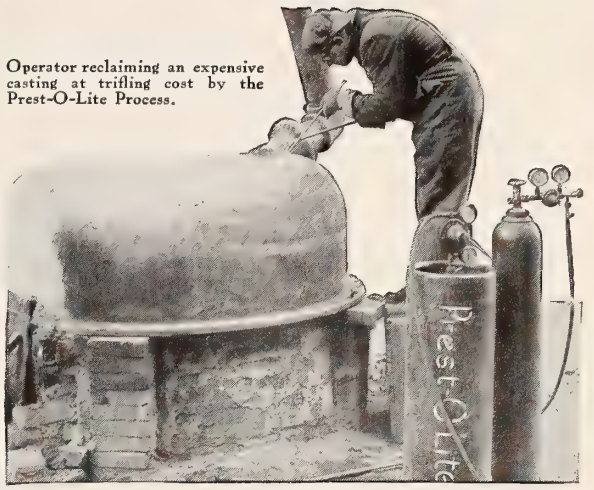


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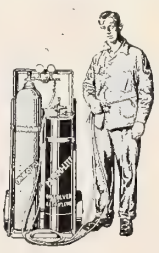
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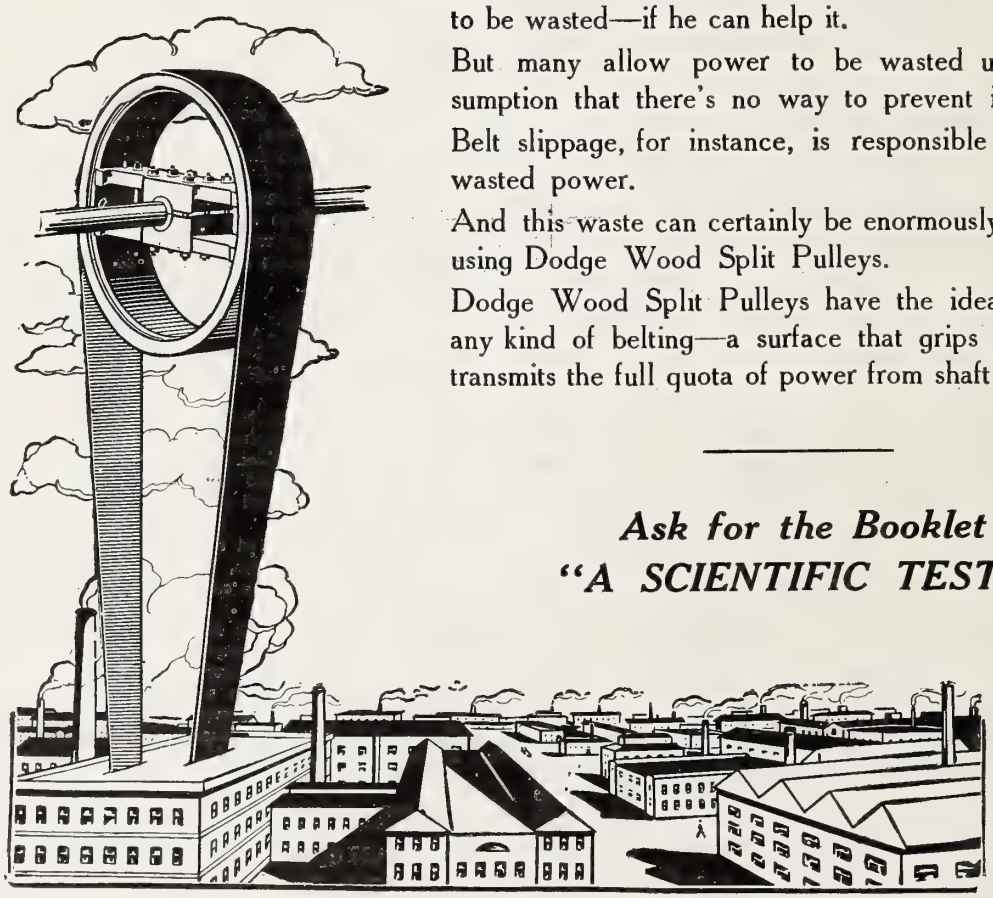
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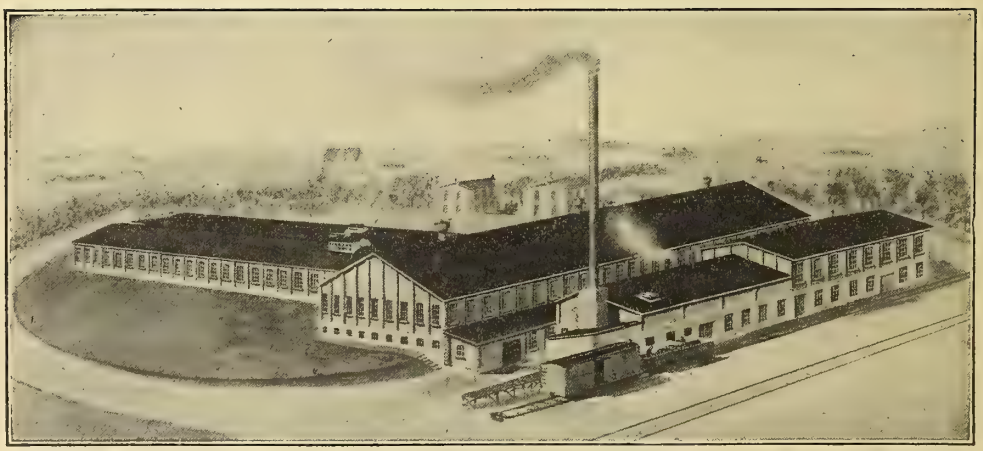
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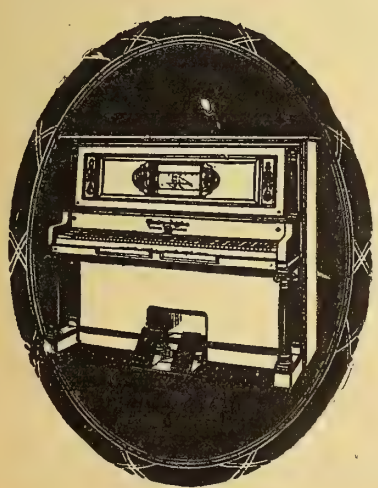
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Statement to the Dominion Government (Condensed), 29th September, 1917.

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Deposits	53,047,148
Other Liabilities	1,490,147
	$60,570,374

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Cash on Hand and in Banks	$10,858,736
Deposit with Government o/a Note Circulation	245,822
Government, Municipal and other Securities	11,856,046
Call and Short Loans	7,009,259
Current Loans and Discounts and other Assets	38,361,837
Bank Premises	2,504,579
	$70,836,279

Riordon Pulp & Paper Company, Limited

Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS

CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72 INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

The Merchants Bank of Canada

Head Office - MONTREAL

Paid-Up Capital	$7,000,000
Reserve Funds	7,421,292
Total Deposits	92,102,072
Total Assets	121,130,558

BOARD OF DIRECTORS

SIR H. MONTAGU ALLAN, C.V.O., President
K. W. BLACKWELL, Vice-President

THOS. LONG, F. HOWARD WILSON, A. B. EVANS
F. ORR LEWIS, A. J. DAWES, E. F. HEBDEN
ANDREW A. ALLAN, F. ROBERTSON, THOS. AHEARN
C. C. BALLANTYNE, G. L. CAINS, LT.-COL. J. R. MOODIE

E. F. HEBDEN, Managing Director
D. C. MACAROW, General Manager
T. E. MERRETT, Superintendent of Branches and Chief Inspector

A GENERAL BANKING BUSINESS TRANSACTED

236 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

New York Agency: 63 and 65 WALL ST.

The Bank of Nova Scotia

ESTABLISHED 1832

Capital	$6,500,000
Reserve Fund	12,000,000
Total Assets	Over 110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
A. W. HOLMES, Toronto
ROBT. HUNGERFORD, Toronto
FRED KELLOND, Hamilton
S. J. MALLION, Stratford
MRS. A. BROWN-REDDICK, Toronto
H. J. TUTT, Toronto

Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent. Phone Main 5800

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works.
D. M. MEDCALF, Chief Inspector of Steam Boilers.
W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways.
W. C. McGHIE, Chairman of Board.
W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849

BRADSTREET'S

Capital and Surplus - - $1,500,000

Offices Throughout the Civilized World

Executive Offices: Nos. 346 and 348 BROADWAY, N.Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptions are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. CORRESPONDENCE INVITED.

Offices in Canada

Edmonton, Alta.	Hamilton, Ont.	London, Ont.
Halifax, N.S.	Ottawa, Ont.	Quebec, Que.
Montreal, Que.	Toronto, Ont.	Vancouver, B.C.

St. John, N.B. Winnipeg, Man. Calgary, Alta. Victoria, B.C. Sydney, N.S.

THOS. C. IRVING, Gen. Man. Western Canada, Toronto

Canada's Victory Bonds

A Safe and Profitable Investment that will Keep Your Business Booming

WHAT would happen to the earnings of the farmers, mechanics, laborers, clerks and other workers in your community if Great Britain stopped buying food, munitions and other supplies in Canada.

There's only one answer—those earnings would, in nearly every case, be greatly reduced, and, in many cases, would stop altogether.

This would certainly hurt your business—might even be disastrous to it.

Therefore, it is clearly in your interest to see that no effort is spared to keep Great Britain buying in Canada.

And in order that Great Britain may continue purchasing in Canada her supplies of every kind—thus providing a sure market for our farmers, and assuring the earnings of the workers in every branch of industry—Canada must extend credit. This can be done only by the sale of Canada's Victory Bonds to the Canadian people.

Remember, you are not asked to GIVE anything. Canada asks you to buy Canada's Victory Bonds. That is, to invest ALL THE MONEY YOU POSSIBLY CAN in an interest-bearing security of the highest order—the signed pledge of Canada, backed by all its resources.

This investment is the very best you could make, because the principal is safe, the interest good, the bonds acceptable at any bank as the security for a loan, or saleable at any time.

Do your part to keep Canadian business prosperous by helping to grant the credit that is necessary to enable Great Britain to continue to buy in Canada.

Take this method of helping your country while at the same time giving your own business prosperity a firmer basis for permanence.

Buy Canada's Victory Bonds

and Recommend Them to Your Customers

Issued by Canada's Victory Loan Committee
in co-operation with the Minister of Finance
of the Dominion of Canada.

63



Which system do you employ for the execution of your business records? The old method of using padded forms, loose sheets, and carbons, or the time and labor-saving "Shouperior" System of Autographic Registers?



Are Two clerks doing the work of one?

WITHOUT your realizing it, this condition might actually exist in your establishment now.

• • •

It is just possible that with your present system of executing business records it is actually taking two clerks to handle the work that one could do if you adopted the "Shouperior" System of Autographic Registers.

• • •

This condition has existed before, and the installation of the "Shouperior" System has shown an unbelievable saving of time, labor, and expense, in addition to ensuring absolute protection of records.

• • •

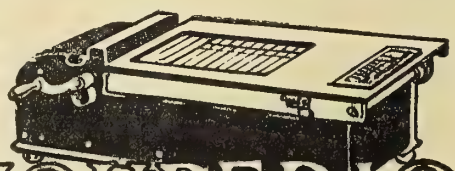
The "Shouperior" System of Autographic Registers can be adapted to any kind of business. By manufacturers, wholesalers, or retailers. For Bills of Lading, Purchasing Department Systems, Receiving or Billing Systems. For charge and delivery forms, factory or work orders. For sales and stock records, vouchers and cash sale systems. In fact, for any business transaction of which a multiple record is desired.

• • •

The economical feature of the "Shouperior" System is that both records and carbon paper are supplied in roll form. The execution of one set of firms automatically prepares the next set. No assembling of forms, blanks, carbons, etc., is necessary. In fact, all detail is eliminated except the actual writing itself.

• • •

We will gladly demonstrate the "Shouperior" System in comparison with the system you are at present employing. It will put you under no obligation. Why not drop us a card to-day?



SHOUPERIOR Autographic Registers

A System for Executing Business Records

The "Shouperior" System has served adequately and economically more than two hundred different kinds of businesses. There is no reason why it will not serve yours equally well.

Autographic Register Company of Canada, Limited

ESTABLISHED 1883

Head Office and Factory: 10 St. Peter Street, Montreal, Que.

Branches: LUMSDEN BLDG., TORONTO SOMERSET BLDG., WINNIPEG 3

Our Resources and Facilities

OUR resources include almost inexhaustible forests of timber in Spruce, Pine and Hemlock.

Our facilities include the latest saw and planing mill equipment for surfacing, jointing, matching, resawing and ripping.

Prices and complete particulars gladly furnished upon request.

Rail or water shipments.



BATHURST LUMBER COMPANY, LIMITED
BATHURST, N.B.

Glue Joint Dowels

Every maker of furniture knows the value of these dowels and the need that they run true to size and straight of grain.

Smooth Dowels

Absolutely accurate in size, truly round and perfectly smooth.

Special Shapes

Special automatic machinery and the fact that we are in the centre of the hardwood district enables us to turn out special shapes, in any quantity, perfect, true and smooth, at short notice and at moderate prices.

Tell us your wants and ask us for prices.

The

Toy Products of Canada, Limited

Makers of Wood Products and Toys

FARM POINT, P. Q., CANADA

STRUCTURAL STEEL

and

BRIDGE BUILDERS



We build and erect all kinds of Structural Steel, Bridges, Roof Trusses, Bank and Office Railings, Stair Work, Elevator Grills, Fire Escapes, etc.

Over 5,000 Tons in Stock of
Beams, Column Sections, Angles, Tees, Plates, Bars, Checkered Floor Plates, etc.

McGregor & McIntyre, Limited

1139 SHAW ST. TORONTO, CAN.

Standard Clay Products Limited

MANUFACTURERS OF

Salt Glazed, Vitrified Sewer and Culvert Pipes

4 inch to 30 inch

Square and Round Flue Linings, Inverts, Building Blocks

Fire Clay Stove and Range Bricks, Locomotive Arch Blocks

And All Shapes in Fire Clay

FACTORIES AT

ST. JOHNS, P.Q., and NEW GLASGOW, N.S.



DURING the past seven years our men have worked without interruption winter and summer for the Ford Motor Company of Canada, Limited, at Ford, Ontario. We have had many new and difficult problems to solve. The photograph above shows a reinforced concrete building 70' x 700' in course of construction. This building was built in water from 15 to 20 feet in depth. There was also 840 feet of concrete wall to be built. This also was carried down from 15 to 20 feet below water. The entire structure is carried on piles. These problems have all been solved successfully and economically.

We would be pleased to solve your building problems.

WELLS & GRAY, Limited

Engineers and Contractors

248 Confederation Life Building **TORONTO, ONTARIO**

Branch Office : Bank of Commerce Building, Windsor, Ontario

How About YOUR Concrete Floors?

YOU know the trouble you have had with those concrete floors that keep continually softening up and dusting; what a loss this means in deterioration of stock and injury to machinery—in time lost moving merchandise over those uneven, crumbling floors — in repair and replacement costs. You know how often you have wished for something that would harden those floors and stop those losses. Well, here it is:

Agatex

chemically transforms a soft, dusting floor to a hard, dense, inpenetrable surface without changing its color or appearance. Actually enters into chemical reaction with the constituents of the cement and forms entirely new compounds, hard, enduring and resistive to wear. Affords three indispensable factory requirements—dustproof, wearproof and sanitary floors.

Get the Agatex Book
Use the coupon and margin below.

TRUSSED CONCRETE STEEL CO OF CANADA LIMITED
TRUSCON
Building Products

Trussed Concrete Steel Co. of Canada, Limited
WALKERVILLE, ONT.

Gentlemen: Please mail the Agatex Book to

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Polarine

65% of the depreciation of the average car is preventable by the use of a good lubricant.

Polarine prevents ***preventable*** wear and tear. It lubricates efficiently under all conditions and deposits a minimum of carbon.

THE IMPERIAL OIL COMPANY
Limited
BRANCHES IN ALL CITIES

T. 212

DU PONT FABRIKOID

REG. U. S. PAT. OFF.

MADE IN CANADA
Used Throughout the World
The Standard Leather Substitute

FOR AUTOMOBILES

FABRIKOID, MOTOR QUALITY, used on the great majority of popular 1917 models. You cannot get full value in a car without Fabrikoid upholstery.

RAYNTITE TOP MATERIALS are absolutely essential to comfort under adverse weather conditions. Made in single and double texture, and amply guaranteed.

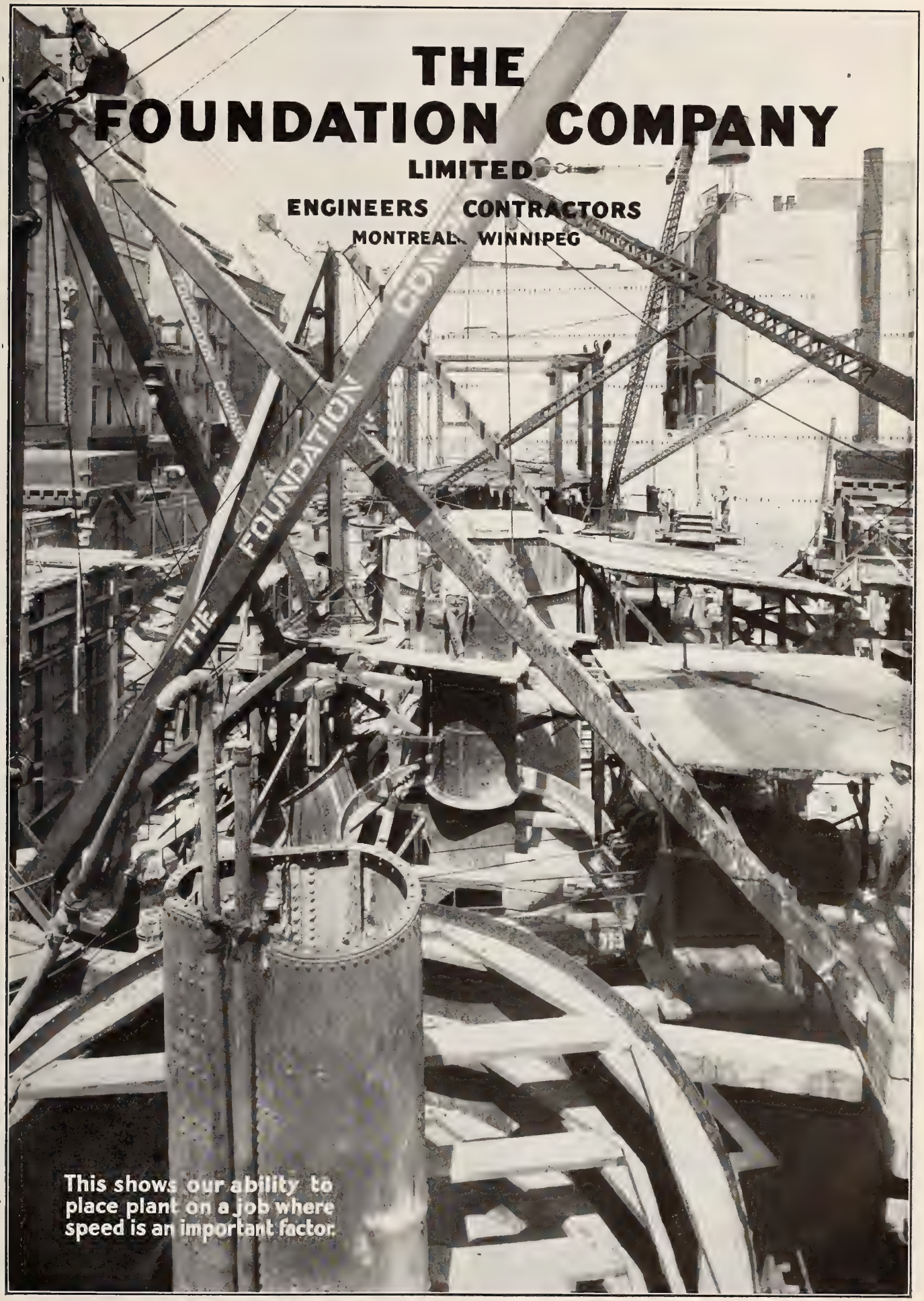
FOR FURNITURE

FABRIKOID, CRAFTSMAN QUALITY, as luxurious as the finest leather, but far more serviceable, being waterproof and grease proof, and easily kept clean with a moist cloth. Never used on inferior furniture.

Special grades for novelty, bookbinding and miscellaneous requirements, especially popular for railroad and marine service.

TELL US WHAT YOU MAKE, AND WE WILL SEND SAMPLES AND PRICES

DU PONT FABRIKOID CO.
Factory and Sales Office, TORONTO, ONT.


THE
FOUNDATION COMPANY
LIMITED
ENGINEERS CONTRACTORS
MONTREAL WINNIPEG
THE FOUNDATION
This shows our ability to place plant on a job where speed is an important factor.

The John V. Gray Construction Co. Ltd.

GENERAL CONTRACTORS

625 CONFEDERATION LIFE BUILDING . TORONTO, ONT.

ALL CLASSES OF BUILDING CONSTRUCTION

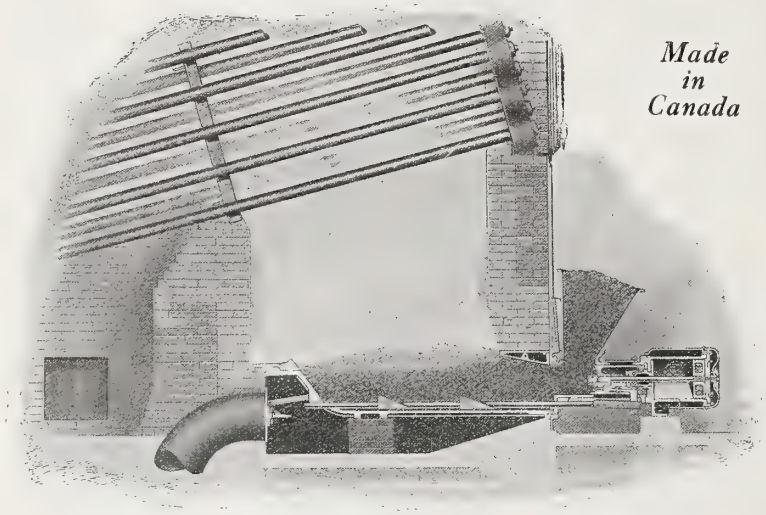
REINFORCED CONCRETE SPECIALISTS

OUR WORK SPEAKS FOR US

PROVED FUEL SAVINGS 15% TO 25%

THIS EXPLAINS WHY SO MANY PLANTS HAVE INSTALLED THE

Jones Underfeed Stoker



Made in Canada

ANY man who has studied the construction of the Jones can appreciate how such savings are made possible, but you don't even need to study—put it up to Jones Stoker plants, already equipped. A perusal of their **records** in fuel savings brings out the evidence that is conclusive.

Ask us for the names of plants near you for reference

Jones Underfeed Stoker Co., Limited

37-41 BRITAIN STREET TORONTO

Chemical Fire Engines

For Factory–Village–City. Capacities 20, 40, 50, 70 Gal.

OUR "JUNIOR" 40 GAL. ENGINE WITH MANY IMPROVEMENTS OVER THE ORDINARY TYPE, SELLS AT $150.00

The R. S. BICKLE COMPANY

WINNIPEG MONTREAL QUEBEC ADDRESS ENQUIRIES TO HEAD OFFICE, WOODSTOCK

EXPORTERS OF

Reed Organs, Piano Stools, Music Cabinets.

Catalogue B.

The Goderich Organ Co. Limited

GODERICH, CANADA

Closet Seats, Flush Tanks, Medicine Cabinets,

Everything for the Bathroom.

Write for Catalogue C and Price List.

"Beaver Brand" Metals—Quality

OUR PRODUCTS:

Sheet Metals—Brass, Bronze, Gilding, Canada Silver, Phosphor Bronze, Muntz and Naval Metal, in Sheets, Rolls, Plates and Coils.

Brass, Bronze, Phosphor Bronze, Naval and Muntz Metal Rods, in every variety of shape.

Special Alloys to Meet Your Minutest Requirements

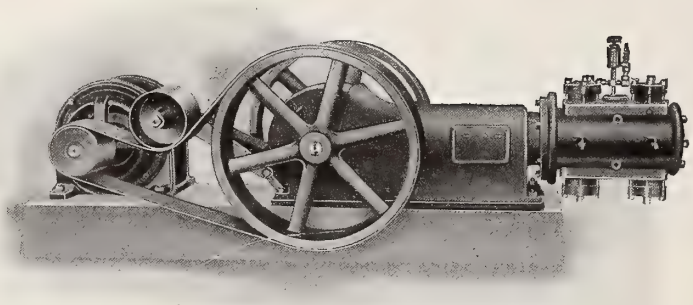
Our Products at Lowest Prices, Combined with

Quality and Service

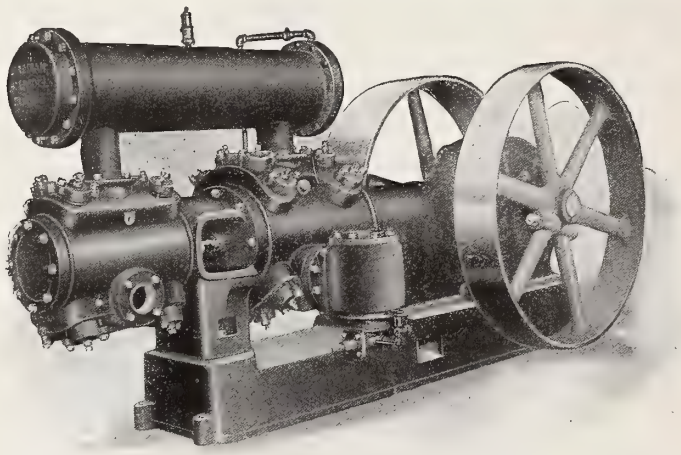
Merit your Immediate Consideration.

Brown's Copper & Brass Rolling Mills,
LIMITED

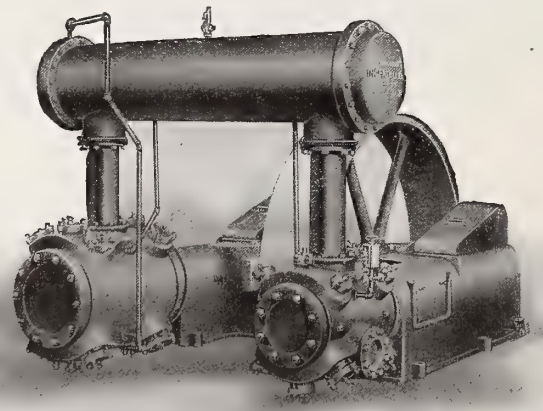
General Offices and Mills, New Toronto, Ont.



Class "EL-1" Air Compressor with Short Belt Drive. Simple and Compact.



Class "EL-2" Air Compressor, Two-Stage, Straight Line, with Intercooler. Powerful and Self-Contained.



Class "PLB-2" Cross Compound, Power-Driven Air Compressor with Intercooler. Easy to Install and Maintain.

Some Sizes of These Machines Can Be Shipped From Stock

Other sizes in progress in our works are well advanced and can be shipped, as a rule, very quickly.

In these days of heavy demand such service as the above is well worthy the attention of the intending purchaser of Air Compressors. Ask any of our Branch Offices regarding machines available for your work. Our semi-monthly stock sheets show the condition of all compressors under way at our works, whether finished or yet in progress, and if the latter, the time required to complete them. This information is at your service at any time.

In buying for quick shipment, you will secure exactly as high-grade, standardized equipment as if you were able to give us many months in which to fill your order.

All of our materials are selected with the greatest care, made for us to the most rigid specifications, and fully tested. Special heat treatment is employed where better results will be secured. Accuracy of workmanship is a special feature and perfect interchangeability is guaranteed.

Thorough inspection of work during manufacturing processes, and of the finished material, maintains Quality; while the closest supervision of methods maintains Service.

Compressors in capacities from 50 to 6500 cubic feet displacement per minute; low, medium or high pressure types.

CANADIAN INGERSOLL-RAND CO., Limited

COMMERCIAL UNION BUILDING, MONTREAL, CANADA

BRANCHES:

Sydney Sherbrooke Montreal Toronto Cobalt Timmins Winnipeg Nelson Vancouver

ATKINS

STERLING QUALITY SAWS







Assurance of the best results, both economic and productive, is found in the constant use of **Atkins Sterling Quality Saws.**

Steel of exceptional quality — that never varies — and the best workmanship has perfected these universally used saws.



Are your results as good as they should be? Try **Atkins Saws** and watch the improvement.

Send for our "C.L." Catalog containing items of interest to you.



E. C. ATKINS & CO., Inc.

Established 1857

MAKERS OF STERLING QUALITY SAWS

Factory : Hamilton, Ont. *Vancouver Branch : 109 Powell Street*



The Industrial Engineer, the Architect

—both recognize the supremacy of the rolling type of Fire Door

IN the buildings that are being pointed to as patterns of efficiency in industrial construction you may safely look for the last word in all stop-fire devices.

The new Kodak Building, the T. Eaton factories, the Goodyear Tire factory, the International Nickel Co.'s refinery use over 250 Ormsby Rolling Steel Doors. Of all the countless types of protection for wall openings Ormsby's Rolling Steel Doors were chosen.

For this action on the part of men who lead in industrial engineering there are two essential reasons:

1st. Ormsby Rolling Steel Doors provide the utmost protection, as evidenced by the tests of the Fire Underwriters and the label that is attached to the doors.

2nd. Ormsby Rolling Steel Doors roll up like a window shade, closing effectively awkward openings where there is no room for swinging doors or sliding doors.

These doors simplify the problem of arranging factory and warehouse space. They may be used to reduce insurance rates in many old buildings, as well as in the modern structures where they are so generally used.

Counterbalancing weights relieve the weight of raising and lowering the doors. The smaller doors operate directly by hand; the larger ones with a chain and gear. Some very large doors are electrically raised and lowered.

Blue prints and full information will be sent on request.

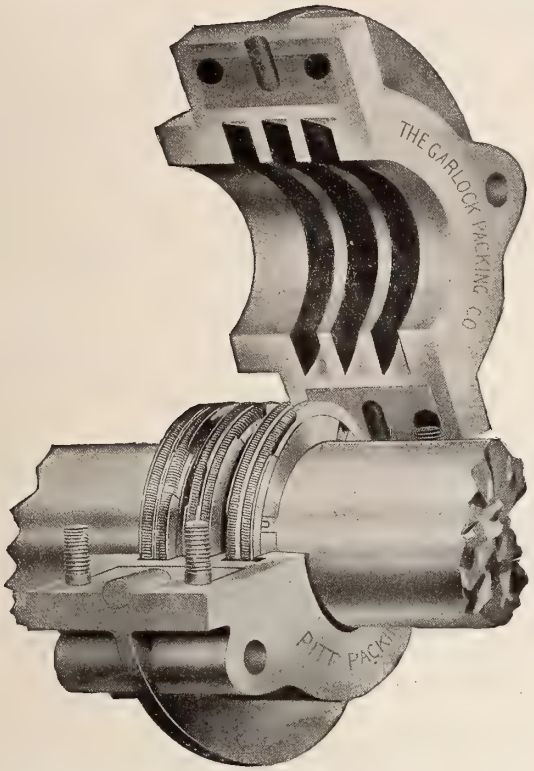
A. B. Ormsby Co., Limited, Toronto

Associated with the Metal Shingle & Siding Co., Ltd.

Factories at Preston, Toronto, Montreal, Winnipeg, Saskatoon, Calgary

Agents:—F. A. Gillis Co., Ltd., Halifax, N.S.; J. R. Bell, St. John, N.B.; M. J. Skelly, Ottawa, Ont.; D. A. Cummings, Brockville, Ont.; A. T. Chambers, Vancouver, B.C.

Ormsby rolling steel door



GARLOCK Metal Packing

OUR position in the metal packing field is based on the principle that "No one style of metal packing can be made to meet all conditions." Working on this basis our experts study carefully the conditions surrounding each case, and with strict regard for mechanical principles, determine which type of packing is best suited to the conditions.

¶ The accompanying illustration shows our Flexible Packing, with split case, which is the most popular style and best all-around packing for stationary work, and when recommended by us to meet stated conditions, is guaranteed to give satisfactory service. This style is also made with solid or split-case to fit inside of stuffing-box, when packing space is sufficient to permit inside application of case and segments. All of our metal packings are so designed that the piston rod has absolute freedom of lateral movement without affecting the efficiency or increasing the friction of the packing.

¶ Next to correct mechanical design the most important feature of metal packing is the material used in the bearing rings. Our materials are made from formulas which long experience has shown to give the best results. A special grade of cast iron is generally used for bearing segments, in order to secure minimum wear and friction, but under unusual conditions, or when considerable condensation enters stuffing-box, bronze rings or segments of softer metal have to be used in the wearing parts.

¶ We can solve your metal packing problems, and we will give the usual Garlock guarantee of satisfactory service, if conditions are such as will admit of the successful use of any metal packing.

Write for catalog describing our many styles of metal and fibrous packing.

The Garlock Packing Company, Hamilton, Ontario



Branches :

Montreal, Quebec.....409 Shaughnessy Bldg.
Toronto, Ontario..... Continental Life Bldg.
Winnipeg, Manitoba ..... Galt Building





QUALITY FIRST

GALT KNIFE CO., LIMITED

GALT - - - ONTARIO

"CRANES MADE IN CANADA"



Electric Traveling Cranes

HAND POWER TRAVELING CRANES
ELECTRIC HOISTS, AIR HOISTS, FOUNDRY EQUIPMENT

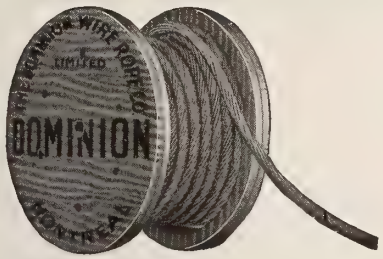
Northern Crane Works, Limited - - - - Walkerville, Ontario

DOMINION COPPER PRODUCTS CO.
LIMITED

Copper, Brass and all Copper Alloy
Tubes, Sheets and Rods
Rolled, Drawn and Extruded Metals

Office and Works:
Lachine Locks, P.Q., Canada

P.O. Address: MONTREAL, P.Q. Cable Address: "DOMINION"



CANADIAN WIRE ROPE

MANUFACTURED BY

The DOMINION WIRE ROPE COMPANY, Limited

Branch: Mail Bldg., TORONTO. Head Office: MONTREAL.

The Babbitt That Stands Up to Its Work!



Try "DOMEKO" in Places Where Others Fail

To Mill Supply Jobbers: Are you looking for a line of Babbitt Metals of exceptional quality? If you are, write us for full particulars and jobbers' discounts on the Domeko line. We have a proposition that is highly attractive to live-wire jobbing houses.

Your Inquiry Will Receive Immediate Attention



Dominion Metal Company, Limited

FOSS & HILL MACHINERY COMPANY
305 St. James St., Montreal, Que. Selling Agents for Montreal

Sherbrooke, Que.

The Safest Matches in the World

Still another improvement has been made to Eddy's "Silent 500s." Each stick is impregnated with a chemical solution that prevents the wood glowing or smouldering after the flame is blown out.

Eddy's "500s" strike easily, quickly and silently, on the box or elsewhere. But once blown out they are extinguished ***absolutely***.

These are the matches to use in home, office or factory—the matches that mean the greatest convenience with danger of fire reduced to the lowest point conceivable.

The E. B. Eddy Company, Limited

HULL - QUEBEC

Established 1851



S. A. E.

SCREWS AND NUTS

Also V. and U.S.
CAP and SET Screws

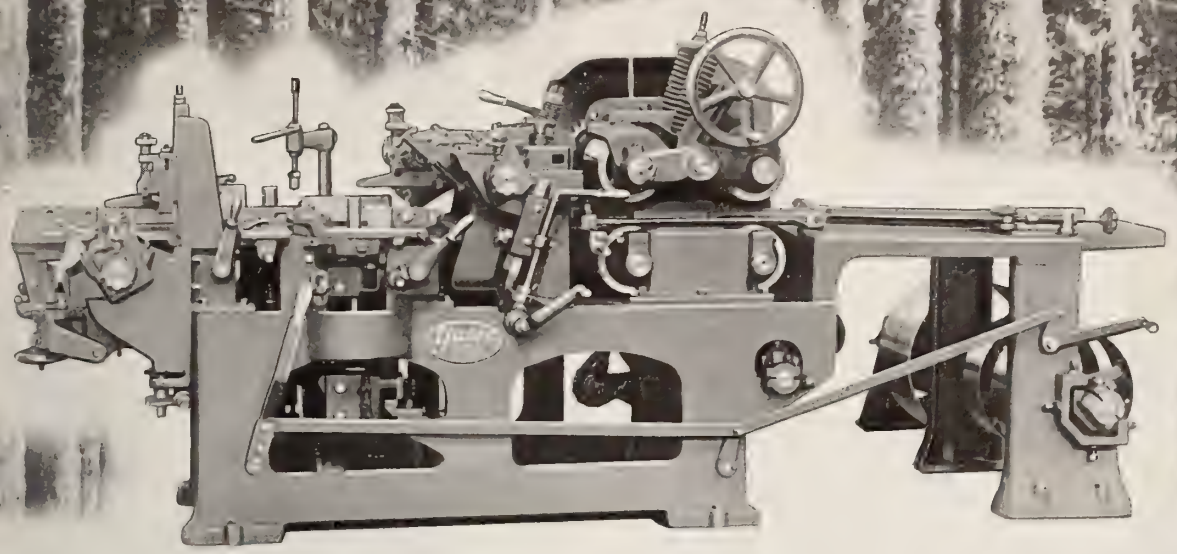
IN STOCK

Special Screw Machine Work from
Iron, Steel and Brass Bars
Sizes up to 2¼" diameter—10½" long.

THE NATIONAL ACME COMPANY
DE COURCELLES AND G.T.R. **MONTREAL, P.Q.**



Wherever the Timber Trail Leads-



A Yates No.108 Open-Side Moulder –

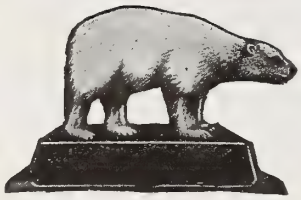
will be found, because this machine combines the good features of both the Inside and Outside Moulder, with none of the faults of either. It is an indispensable unit in more than 1500 mill equipments, North, East, South and West. It is the acme of durability and efficiency. It is synonymous with low upkeep and high profits.

Descriptive circular No. 108 sent you on request. Free and without obligation.

P. B. Yates Machine Company

BELOIT, WISCONSIN, U. S. A.

Canadian Plant with Offices Hamilton, Ont.



BRASS, PHOSPHOR BRONZE, COPPER AND ALUMINUM CASTINGS

We have the largest Jobbing Brass Foundry in Canada

Can Make Prompt Delivery

Write for Prices

Tallman's Reputation is in the Goods

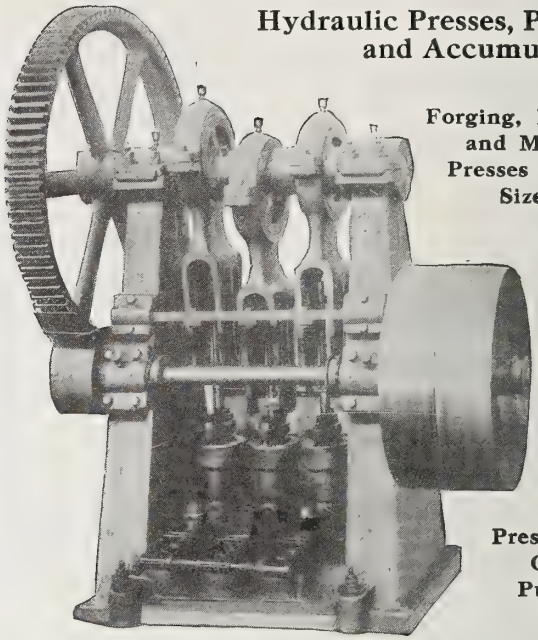
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HAMILTON, ONT.

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Hydraulic Presses, Pumps and Accumulators

Forging, Nosing and Marking Presses for all Size Shells



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Are You Sure Your Electrical Wiring is Safe?

There is but one absolutely safe method of wiring. Install a CONDUIT SYSTEM — it will eliminate all risk of Fire.

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THE BEST-KNOWN CABLE REEL IN CANADA

In Halifax or Vancouver, whether on the public thoroughfares of our larger cities or smaller towns, wherever there is a cable installation in progress, the reels invariably bear the name of the Northern Electric Company, Limited.

The installation may be overhead, underground or submarine. It may be for a Telephone Company, a Telegraph Company, a Railroad Company or for a street lighting system.

The quality, both of the product and the service, is largely the reason for the universal demand for Wires and Cables of Northern Electric manufacture

Northern Electric Company
LIMITED

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ECONOMY renewable cartridge FUSES

SAVE 80% YEARLY OF FUSE COSTS

Thousands of fuse users use Economy Fuses exclusively. They have found that it is bad business to use a fuse of the non-renewable type that must be thrown away when blown. Economy Fuses, when blown out, can be renewed and kept in service. They ensure safety, too, and have the full approval of the Canadian Board of Fire Underwriters.

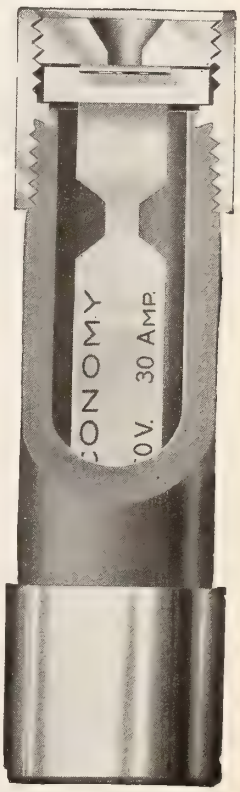
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UNITY BUILDING, MONTREAL

Manufacturers in Canada of "S & C" High Potential Fuses—to 150,000 Volts

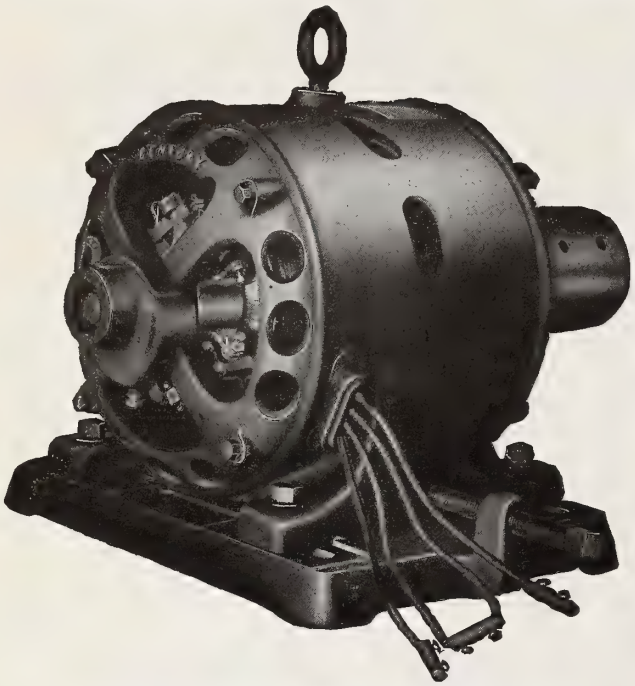


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Jones & Moore Electric Co.

LIMITED

294-300 Adelaide St. W. - - Toronto



MANUFACTURERS OF DYNAMOS AND MOTORS

REPAIRS PROMPTLY PERFORMED

We Offer For Sale

the following Second-Hand 60-Cycle Motors:

No.	H.P.	R.P.M.	Volts.	Phase.	Make.	Type.
1	20	850	220	2	Westinghouse	CCL
3	10	1120	220	2	Westinghouse	CCL
2	5	1120	220	2	Westinghouse	CCL
2	5	1720	220	2	Westinghouse	CCL
1	2	1720	220	2	Westinghouse	CCL
1	2	1720	any	2 or 3	Crocker Wheeler to be wound	
3	1	1720	any	2 or 3	Westinghouse CCL to be wound	
2	10	1120	any	3	Westinghouse CCL with Star Delta switch	
1	20	850	220	3	Westinghouse	CCL
2	10	1120	220	3	Westinghouse	CCL
1	5	1120	220	3	Westinghouse	CCL
1	5	1720	220	3	Westinghouse CCL Rewound	
1	3	1720	220	3	Westinghouse	C
1	5	1720	220	3	Westinghouse	C

25 Cycle Motors.

No.	H.P.	R.P.M.	Volts.	Phase.	Make.
1	50	750	550	3	Canadian General Electric, Form K.
1	60	750	550	3	Crocker Wheeler

TRANSFORMERS.

2	75 k.w.	C.G.E.-H.G.	60 cycles volt.	1040	115
				2080	230
1	40 k.w.	Pack. R60	60 cycles volt.	2200	220
1	40 k.w.	West.	60 cycles volt.	2200	220
				1100	110
1	2½k.w.	Pack. R10	60 cycles volt.	1100	110
				2200	220

Write for Prices on these or new machinery.

TORONTO & HAMILTON ELECTRIC CO., Limited

HAMILTON - ONTARIO

MADE IN CANADA

Canadian Hart Wheels

CUT FASTER LAST LONGER

Than any other wheels on the market

Tell us the service you want performed and we will supply you with an abraser that will save you time, money and worry.

Send for one of our catalogues and tell us your troubles. We do the rest. :: :: :: ::

CANADIAN HART WHEELS LIMITED

450 BARTON ST. EAST

Hamilton :: :: :: Ontario

MADE-IN-CANADA

Toronto, Ontario

Mr. Manufacturer:—

Are you sincere in your desire to boost and make greater the British Empire by the buying of Canadian made goods? If so, look over the following list of high-grade oils, greases, compounds and paints manufactured in our oil refinery at Petrolia and our paint works at Toronto, Ontario. A postal card from you will bring you full information regarding the goods in which you are interested.

CYLINDER OIL
ENGINE OIL
MACHINE OIL
DYNAMO OIL
TANNER'S OIL
BLACK LEATHER OIL
PARAFFINE WAX
MINERAL SOAP STOCK
BENZINE

CANADIAN OIL COMPANIES LIMITED
Quality First
NATIONAL BRANDS

WHITE LEAD
READY MIXED PAINT
COLORS IN OIL
VARNISHES
BLACK JAPANS
STEEL BRIDGE PAINTS
ROOFING PAINTS
CUP GREASE
LINSEED OIL SOAP



COLOR WORK PROPERLY APPLIED

THE above is one of a series of six display cards recently gotten out by our Montreal plant for W. Clark, Limited—Clark's have exclusive rights for Canada for the boy whose picture is shown.

Clark's canned goods are of superior quality, and Clark's are keeping **their advertising up to the quality of their goods.**

Color, properly applied, is an effective, almost essential, adjunct to **Business-getting advertising,** but to be properly applied it must be handled by color experts.

SOUTHAM PRESS LIMITED
Toronto CANADA'S LEADING COLOR PRINTERS Montreal


PACKING MEMO
IN BOX NO 1

Marine Engines, Marine Boilers and Marine Electric Equipment

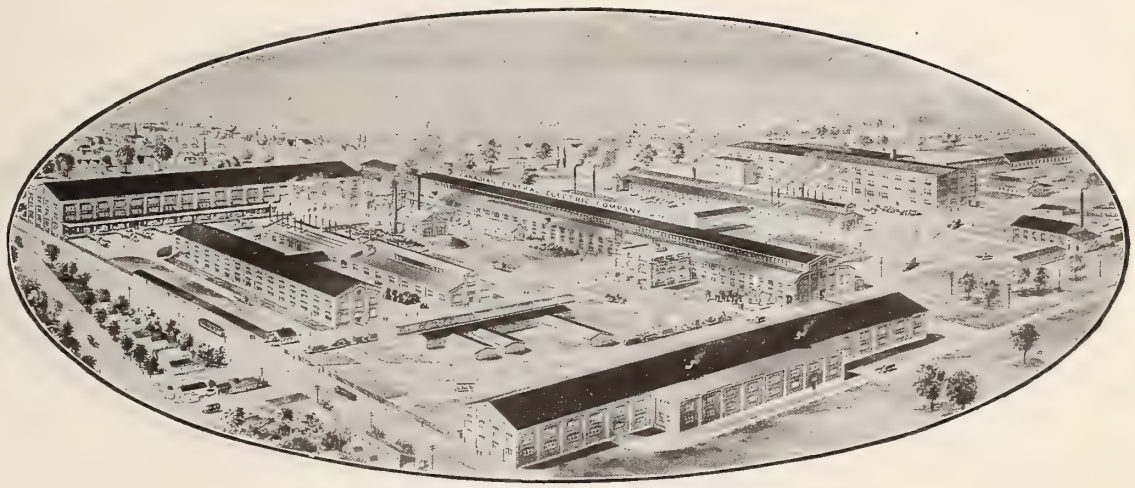


DAVENPORT WORKS

The largest general engineering works in Canada specially equipped for the manufacture of marine engines, boilers and pumps.

Canadian Allis-Chalmers, Limited

Head Office, King and Simcoe Sts., Toronto



PETERBORO WORKS

The largest electrical manufacturing plant in Canada. Electric generators, motors, switchboards, lamps, fixtures, wire and general electric supplies.

Canadian General Electric Co. Limited

Head Office, King and Simcoe Sts., Toronto

A Good Thing for the Fighters—
A Good Thing for the Workers—
A Good Thing for the Manufacturers—

VICTORY BONDS

Everybody wants to keep Canada's fighting men fully equipped so that they lack nothing essential to success. Everybody wants to see business activity and agricultural production increase. So everybody should buy Victory Bonds, the purpose of which is to improve production and maintain fighting efficiency.

THE PEDLAR PEOPLE LIMITED

MANUFACTURERS OF "PEDLAR'S PERFECT SHEET METAL PRODUCTS"
(Established 1861)
EXECUTIVE OFFICES AND FACTORIES: OSHAWA, ONT.
Branches: Montreal, Ottawa, Toronto, London, Winnipeg, Vancouver

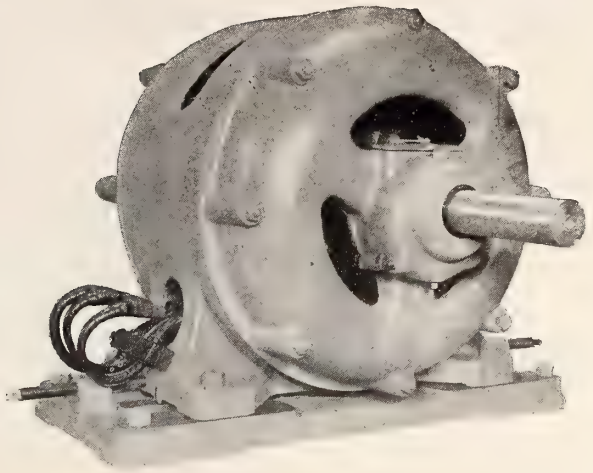


MACDONALD MANUFACTURING CO., LIMITED, TORONTO

We Specialize on Cans or Boxes required for Customer's Exclusive use
Practically Nothing Else made in our Entire Plant
This Ensures Undivided Attention to Your Particular Order

PLAIN OR DECORATED TIN BOXES AND SIGNS

Westinghouse



Type "HS" Induction Motors

A complete new motor, built to insure its users continuous, successful operation. No sacrifice in either mechanical or electrical construction has been made to adapt the parts to obsolete design. Exhaustive tests have demonstrated their reliability and efficiency.

Canadian Westinghouse Co., Limited, Hamilton, Ont.

TORONTO Traders Bank Bldg. · MONTREAL 52 Victoria Square · OTTAWA Ahearn & Soper, Ltd. · HALIFAX 105 Hollis St. · FORT WILLIAM Telfer Bldg.

WINNIPEG 158 Portage Ave. E. · CALGARY Grain Exchange Bldg. · EDMONTON 211 McLeod Bldg. · VANCOUVER Bank of Ottawa Bldg.

Barrett Specification Roofs

Made in Canada



Canadian Pacific Railway Hotel, Calgary, Alberta
Architects : Edward & W. S. Maxwell, Montreal
General Contractors : P. Lyall & Sons Construction Co., Limited, Montreal.
Roofers : D. R. Foulds, Limited, Calgary.

How the 20-Year Guaranty Operates—

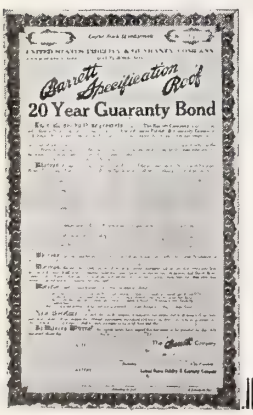
THE following illustrates the working of our new plan to guarantee Barrett Specification Roofs for twenty years :

When the question of roofing is reached in the specifications covering the building the following, or its equivalent, should be inserted in the building plans :

> "This roof shall be laid according to The Barrett Specification dated May 1, 1916, and the roofing contractor shall upon completion of the job deliver to us the Barrett 20-Year Guaranty Bond, in accordance with Note 1 of such Specification."

Competitive bids may then be asked for from a number of roofing contractors.

The concern to which the job is finally awarded promptly notifies us regarding the work, asks for our Inspection Service, and the 20-Year Bond.



Our inspectors supervise the job, see that the Specification is strictly followed both as to methods and materials, and on its completion certify that the roof is O.K. in every respect.

On this certification the guaranty company issues a 20-Year Surety Bond which *exempts the owner from any maintenance or repair expense to the roof until 1937.*

The Guaranty Bond costs the owner and the roofing contractor nothing.

The service is free in the interest of good workmanship and the good repute of our materials.

How to Get the 20-Year Guaranty Bond

This new Guaranty Bond is issued on all Barrett Specification Roofs of fifty squares or more in all towns of 25,000 population and over, *and in smaller centers where our Inspection Service is available.*

Our only requirements are that the roofing contractors shall be approved by us and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

If you are interested we should be very glad to send you further details or copy of The Barrett 20-Year Specification, with diagrams, ready for insertion in your building plans.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XVIII. TORONTO, NOVEMBER, 1917 No. 7

INDUSTRIAL CANADA

Issued monthly as the official publication of the Canadian Manufacturers Association (incorporated), and devoted to the advancement of the industrial and commercial prosperity of Canada.

SUBSCRIPTION

Two Dollars per Year **Single Copies 20 cents**

Advertising Rates made known on application

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Importation and Sale of Coal.

IT is of prime importance that every member of the Canadian Manufacturers Association, who uses coal in his manufacturing operations, should post himself on the regulations issued by the Fuel Controller for Canada and approved by His Excellency, the Governor-General in Council. As these regulations may not be readily available to manufacturers, we reprint them in full in this number of INDUSTRIAL CANADA, and they will be found, by those interested, on page 999. The Fuel Controller and all persons mentioned in the said regulations have been invested with all powers necessary to enable him or them to give full effect to the said regulations, and to impose penalties therein provided as being enacted by the Governor in Council, under the provisions of the War Measures Act.

The Bell Memorial.

AN event, somewhat out of the ordinary in the practical everyday life of the country, was the unveiling last month, at Brantford, of a memorial, commemorating the invention of the telephone by Dr. Alexander Graham Bell. The memorial is a monument not only to the invention, but to the inventor, and the presence of Dr. Bell himself at the ceremony was a unique feature of the occasion.

It speaks well for those prominent citizens of Brantford who conceived and fathered the Bell Memorial. We are inclined in this country, and particularly in the industrial centres, to scoff at art and decry anything but the practical and the utilitarian in life. That art should have a place and that its influence should be more strongly exerted is surely desirable, if we are to build up a nation really worth while in the world. Therefore, all honor to the business men of Brantford for their display of interest in this laudable undertaking.

Suppress the Patronage Evil.

THAT live organization, the Canadian Forestry Association, is awake to every opportunity to promote its propaganda—the safeguarding of Canada's forest wealth. Now that the new Union Government is in harness and has declared its intention of exterminating the patronage evil, the Forestry Association is up and pleading for immediate attention to the personnel of the field force of the Dominion Forestry Branch.

"It is doubtless highly desirable," writes Robson Black, Secretary of the Canadian Forestry Association, "that not even a junior clerk in a town post-office should be manipulated by a local political ring, but it is of much more account that the members of technical services should come in for the first application of patronage relief. One of these technical services is the Dominion Forestry Branch, with a large staff of field men responsible for the protection from fire of the enormous areas of forest in the Prairie Provinces and a section of British Columbia. Since the formation of the Forestry Branch, the greatest handicap on its usefulness to the people of Canada has been political interference with appointments to the field services, these services including not only fire ranging and inspection, but the important tree nursery work designed to supply Western farmers with shade trees and shelter belts. Such a responsibility as devolves upon the Dominion Forestry Branch and other technical services ought to be freed with minimum delay from the blight of the patronage business. If there is to be any gradual introduction of the Civil Ser-

vice merit plan into the 'outside services,' the technical departments which suffer most gravely are due for prompt action."

INDUSTRIAL CANADA is quite willing to second this plea for more careful and impartial selection of the men on whose efficiency so much depends in the way of conserving our great forest resources.

The Money Test.

THE announcement of Canada's Victory War Loan is no mere item of "financial intelligence." It is a reminder and a summons of the most vital character to the whole public. There can be no measurement yet of what the war is going to mean in terms of money. The only certainty is that larger and larger demands await us, and that to refuse them would be to stultify what is already given. The money test has not yet made any real assay of our moral stamina—thanks to our great resources—but as the struggle continues the response will have to come more and more from the balance of our daily incomes and outgoings.

That we can provide the wherewithal is incontestable. There is no belligerent nation enjoying anything like the same margin above the necessaries of life. We should be shamed in the eyes of every Ally if we shrank from a discipline which each of them has long ago reached and overpassed. But our pathway of civilian comfort has hitherto been so free from interruption that the coming strain will try us all the more severely. Those only are wise who take pains to put their house and their habits in order of their own accord before the approach of the categorical imperative.

Food economy is our essential defence against a particular form of attack; general economy is a branch of our offensive without which the victory cannot be clinched. It is, therefore, the most universal of civilian obligations and, we need scarcely say, the most widely neglected. Yet every man is an implicit "pro-German" who lets his hand move automatically to his pocket under the impulse of desire, or who signs a cheque without asking himself fairly and squarely whether it is for something he can do without.

No heart need grow faint at the prospect of our wealth being turned wholesale into shot and shell. It is a sowing that would have richer harvest than itself, even if it never came back in coin or commodity, for it is the payment for priceless things. But its literal and concrete return under an organized use of our enhanced productive power will be one of the subsidiary romances of the great drama—provided that we make sure of our flawless victory.

If the business men will cheerfully put up the money in sufficient amount the orders will come, industry will be maintained and prosperity assured. Failing this the orders will go elsewhere and the prospect in such event is too serious for contemplation. It will not cost the individual nearly so much to help win the war as it will cost the country at large to lose it. Every person who *fails* to help over-subscribe this loan issue imposes additional burdens on those who have done their duty. What is money, business or a job worth without a country? If in the end the Victory War Loan is under-subscribed untold *aid* and *encouragement* will be given the enemy.

We believe, however, that our business men will fully rise to the emergency and save the situation. With the return of peace our whole wastage will be repaired with a rapidity that must cause the literature of economics to be re-written. But the inviolable condition is that we shall subordinate the utmost of our possessions to the making of the end secure.

The Newspaper Publishers' Subsidy Again.

OUR gentle little dig at those free-trade newspapers, which were in the forefront in petitioning for government assistance in order to further the establishment of a national, ocean-to-ocean, news service, has roused the indignation of that excellent Western newspaper, the Regina *Leader*. To the length of nearly a column of its editorial space, it strives to demolish our argument by contending vigorously that there is absolutely no similarity between the newspaper publishers' little subsidy and the manufacturers' protection.

Of course we did not expect the *Leader* to see eye to eye with us on this point, and we might have felt inclined to let the matter drop altogether, had not our pride been touched by the *Leader's* irritating little remark that while we may be long on protection we are lamentably short in logic.

The whole trouble arises over the difficulty of making the *Leader* understand what the basic idea of protection is. Its brain is so befogged with the perverted notion that the manufacturers have, of malice aforethought and with base design, secured the imposition of a duty on competing goods in order to stuff that duty into their pockets, that it cannot see any more worthy reason for the raising of a tariff wall. So obsessed is it with this idea that when we suggest that the newspaper publishers' subsidy bears a sort of family resemblance to the manufacturers' protection, it immediately assumes that we are accusing the publishers of pocketing the subsidy. Quite naturally it waxes indignant and, so far as we are concerned, we are glad to see this show of resentment. But why, why cannot the *Leader* be equally generous and allow the poor manufacturer a little righteousness and a desire to serve his country?

Of course, if the *Leader* insists that we must construct our parallel on *its* definition of protection, making the manufacturer a villain and the publisher a paragon, then we throw up our hands and admit that our logic *is* lamentably weak. But we have no intention of admitting anything of the kind. We want to place the manufacturers as a class and the publishers as a class in the same boat, attributing to each a similar standard of common honesty and patriotism. We want to believe that the manufacturing industries of the country are doing as much for the

good of the country and for its advancement in comfort and prosperity as are the newspapers.

On this basis we return again to the attack. In order to establish industry in this country and for the good of this country, the Government has allowed manufacturers a certain advantage in the matter of duty which enables them to overcome the handicaps of cheap foreign labor and other obstacles to the advancement of national industry. In order to establish a national news service in this country and for the good of this country, the Government has allowed newspaper publishers a certain advantage in the matter of subsidy, which enables them to overcome the handicaps of transmitting news over long stretches of unproductive territory. We submit that the basic idea,—governmental intervention to overcome handicaps,—is the same in each case, even though the means employed to that end may be different.

Borne Out by Willard.

IT was pointed out in these columns not long ago that, while a great deal was being said about the necessity of shippers using discretion in loading cars and expedition in unloading them, the carriers themselves had a duty to perform in seeing that the freight was not delayed in transit. This aspect of the case has been touched upon by at least one prominent railway man, President Willard, of the Baltimore & Ohio. In the course of an address to the officers of that system on "The Duty of the Baltimore & Ohio Man," Mr. Willard said:—

I have paid you some compliments, well earned and well deserved, but I am not going to deal exclusively in compliments. There are some things on the other side of the ledger, and I am going to be equally frank to criticise. There is one feature of our operation that every one of us, collectively and individually, ought to be ashamed of—and that is the inefficiency of our car movement. I will tell you something that perhaps you have not heard of, and if you have not you will be surprised, and you ought to be ashamed also; I am. We have had tests made by our own people, and they have also been made on other railroads, which show that the freight cars in this country are upon the average under control of the shippers thirty-seven per cent. of the time—thirty-seven per cent. the shipper has the car, six per cent. out of that thirty-seven being Sundays and holidays. That leaves sixty-three per cent. of the time of the car in the control of the railroad. Now, what does the railroad do with it? You may say, I suppose, that out of that sixty-three per cent. probably forty-five or fifty per cent. of the time the car is moving on the road. Nothing of the kind. Only eleven per cent. of the total time of the car is it actually being moved. What happens to that other fifty-two per cent. of the time? Standing still in terminals, waiting to be switched, standing on connecting tracks with other railroads, waiting to be repaired, being moved from the yard where the train left it to the warehouse—and things of that kind. Only eleven per cent. of the time is the car actually in motion; only thirty-seven per cent. of the time is it under the control of the shipper; and the Baltimore and Ohio is not any worse than others—as a matter of fact figures show that, bad as we are, we were slightly better than the average, but that is the problem that confronts the railroads.

Now we talk of cutting down the free time of forty-eight hours allowed for loading and unloading, and certainly that would seem right in times like these; but, after all, it would only be a reduction on thirty-seven per cent. of the time of the car. Why not face the thing right and say, "Here is fifty-two per cent. of the time which, if not wasted, is certainly not properly and fully utilized; we will cut that in two?" If we did that it would in effect add 22,000 cars immediately to the Baltimore and Ohio Railroad's equipment. That is the most important problem I have for the operating men this year. That is problem enough. Take that home with you, get all the results possible in that connection, and you will be busy enough.

The Ontario Insurance Commission.

ON the 9th, 10th and 11th of October, the last public sittings of the Ontario Insurance Investigation were held. Mr. J. B. Laidlaw submitted a lengthy but interesting statement describing in detail the work carried on by the Canadian Fire Underwriters' Association and their methods of operation. He claimed that the C.F.U.A. perform very valuable services to the community in reducing fire waste, and consequently, of course, in reducing fire insurance rates. Mr. Leighton McCarthy and Mr. F. W. Wegenast, counsels respectively for the C.F.U.A. and the Canadian Manufacturers' Association, presented their arguments, and differed principally on one main point. Both counsel agreed that government interference with rates was impracticable and undesirable. Mr. McCarthy, however, thought that although the tariff companies transact the great bulk of the insurance in Ontario, the few licensed non-tariff companies were sufficient for competitive purposes and all persons taking advantage of the competition of unlicensed companies should be taxed a considerable percentage of the premiums so paid. Mr. Wegenast maintained that, since Government supervision was not asked for, the public should not be deprived of their only resource in case the rates quoted by the C.F.U.A. were unduly high. The only restraint on what was to all intents and purposes a combine, was free and unhampered competition and the value of such competition would be most seriously reduced by the imposition of any such tax as the C.F.U.A. demanded.

The Hon. Mr. Justice Masten has on more than one occasion intimated his appreciation of the fact that competition should not be hampered. It is to be hoped that the evidence submitted will amply prove to him that any further tax on unlicensed insurance will exercise a hampering effect. The Commissioner has a vast amount of work before him in digesting all the information placed at his disposal and may possibly find it desirable to make a personal visit to some of the States in order to ascertain the working of the various State insurance laws. It will, therefore, be a very considerable time before we can expect the report of the Commission to be completed.

Are We Falling Down on Industrial Research Work in Canada?

FOLLOWING the establishment in 1915 of a scheme for the organization and development of scientific and industrial research in Great Britain, the Dominion Government took action along similar lines.

There was constituted on the 29th of November, 1915, under a Committee of the Privy Council of Canada, an Honorary Advisory Council for Scientific and Industrial Research, representative of scientific and industrial interests in Canada. It was the confident expectation of many progressive business men that the Honorary Advisory Council, in proceeding along lines designed to link up the resources of science with the labor and capital employed in production, would render valuable assistance to a movement, the success of which is not only vital to the proper development of the Dominion, but which is absolutely necessary to enable Canada to compete with progressive countries in the great race of national expansion.

Shortly after the Advisory Council was formed, it proposed to the Dominion Government the establishment of industrial research laboratories throughout Canada, involving the expenditure for each of a sum of money not exceeding half of the annual cost of the same, the remainder to be provided by the city or locality in which each such laboratory was placed.

A Beginning Must Be Made.

The Government, holding that it would be difficult to discriminate amongst so many localities, and that to satisfy all would involve an immense expenditure, declined to accept, for the present at least, the proposal of the Advisory Council to establish such research laboratories. This would mean that Canada continues to lag along behind her neighbors industrially, which means again that the past and present system of coddling will have to be continued indefinitely.

Why not have a paralleled movement of a practical kind, together with the framing of the inevitable official reports which only too frequently reach a shrine in a pigeon-hole? Surely a beginning must be made somewhere. Canadian manufacturers are convinced of the necessity of vigorous action, and consider that as a first step in carrying out the scheme of industrial research, the Government should, through the Advisory Council, establish a Bureau of Scientific and Industrial Research at once. It is suggested that such a bureau might be placed in Toronto by way of a beginning. Toronto, as the headquarters of the Canadian Manufacturers' Association, offers a natural and supremely important position for such a first bureau. The advantages to be derived from co-operating with the scientific staff and talent of the University of Toronto, together with the facilities for collating scientific and technical information which are given by the extensive city, university, parliamentary and other libraries, are additional reasons for locating a bureau in Toronto. Besides representative Toronto manufacturers have volunteered substantial assistance to such a scheme.

The British Example.

It is difficult to understand how public money could be more wisely spent at the present moment to assist commercial development than in the establishment of such a research laboratory, which would make possible the solution of many problems that at the present moment retard our industrial progress and prevent Canada from taking as prominent a place in the commercial world as her natural resources amply justify, while also placing at the disposal of our young industries the means of improving their methods of manufacture and general operation so as to be in a position to meet world competition.

In the second Annual Report of the British Advisory Council for Scientific and Industrial Research, vastly better statesmanship is exhibited. Here the work of the Council has developed, and the industrial side of research has grown in bulk and importance, necessitating the establishment of a Department. The foundation of the new Department has led to the creation of an Imperial Trust for the encouragement of Scientific and Industrial Research, which holds on behalf of the Department the large sum of $5,000,000 which Parliament has voted. The British Advisory Council has recommended that the money thus made available should be spent in the form of grants in aid of research undertaken by firms in any industry which may continue to conduct it on a co-operative basis.

Substantial progress has already been made in Great Britain towards the establishment of a National Research Association for cotton, which will conduct researches covering the whole industry, including the study of the cotton plant at one end and the "finishing" of the manufactured article at the other.

Work Done in Great Britain.

The woolen and worsted manufacturers of Great Britain have appointed a provisional committee to draft the constitution for a Research Association and the Irish flax spinners and weavers have decided to take a similar step. The Scottish shale oil industry and the photographic manufacturers have decided to establish associations immediately. The paper workers are urging the Council to establish a state laboratory to the initial maintenance cost of which they are anxious to contribute.

The property of the National Physical Laboratory has been transferred from the Royal Society to the Depart-

ment, which will in future be responsible for its maintenance and development along industrial research lines.

Several important discoveries made during 1916 and 1917 are announced, amongst these being three completely new glasses, marketable hard porcelain, from purely British material, and the standardizing of the heat treatment of high speed steel, which is of great value to the Admiralty, while among other subjects being reported on are the resources and production of iron and other metalliferous ores. Liberal grants have also been made to individual research workers.

Developments have taken place during the last four years as regards industrial procedure, these being the result of investigation and research.

Plainly the proper course is to supply our Canadian industries with the means of developing their own strength and growth. Industrial research laboratories are, as shown by the history of our foreign industrial competitors, undoubtedly one of the best means of fostering industries. Let us have them then that Canadian industries may stand on an equal footing with those of foreign rivals.

The Victory Loan.

BY the time this issue of INDUSTRIAL CANADA reaches its readers, the Victory Loan campaign will be well under way from coast to coast. As it is to be a popular loan and reliance is to be placed on the individual subscriber, the manufacturers of the country have a duty to perform in seeing that as large a number of their employees as possible subscribe to the loan. Apart altogether from reasons of patriotism, aside even from the consideration of the monetary return on the investment, it will be a good thing for the credit and stability of the country to have as many bondholders as possible. Just as it often pays to allow employees a stake in a business, so it will be desirable to give every Canadian a financial interest in the Dominion.

Shell Orders from the United States.

THOUGH it has been known for some weeks past that orders for munitions were to be placed by the United States government in Canada, the official announcement of the completion of arrangements was not forthcoming until November 9. It then appeared that the orders would be of large proportions. From six to seven and one-half million 75 mm. shells will be required during the first seven months of 1918. This is gratifying news to the Canadian manufacturer and producer of munitions, for it means a continuation at full capacity of the operations of our big munition plants. Just when it was feared that shell production was dwindling or being limited to certain special makes and sizes, the new orders have come as an assurance that work will be plentiful during the coming winter.

It is stated that the United States government will be represented in Canada by the Imperial Munitions Board, through whom the contracts will be made and who will supervise the production of the shells. The steel and component parts will be furnished by the United States ordnance department, while Canadian manufacturers will forge the steel and machine and assemble the shells.



Maritime Branch Manufacturers at Sydney

Members who attended the Branch Meeting on October 17th and 18th, 1917

Standing from left to right, front row—R. B. Stewart, P. C. Black, S. R. Parsons, President C.M.A.; W. S. Fisher, Chairman Maritime Branch; E. E. Shaw, L. W. Simms, Alex. Wilson, R. R. Chappell, W. H. Farnham. Dr. George B. Cutten, President Acadia University, is on the first step between Mr. Black and Mr. Parsons. Principal F. H. Sexton, Nova Scotia Technical College, stands behind Mr. Parsons and Mr. Fisher. R. J. Younge, of the Canadian Export Association, is behind Mr. Fisher.

News and Views of the Association

By G. M. MURRAY

(NOTE: Under instructions from the Executive Council of the Canadian Manufacturers Association, "Industrial Canada" will in future be used as a medium for keeping Association members advised of the work that is being undertaken in their interest. The items which follow mark the commencement of this service, which will be extended as soon as all the necessary arrangements can be completed. Correspondence upon any of the matters referred to herein will always be welcomed by members of the staff.—The Editor.)

Union Government Endorsed

Association Pledges its Support to Military Service Act and Forthcoming Victory Loan

AT the October meeting of the Executive Council, the Association was definitely lined up as a supporter of Union Government in the form of the following resolution, a copy of which was immediately despatched to the Prime Minister:

The Executive Council of the Canadian Manufacturers Association, at its first meeting following the announcement of the consummation of Union Government, warmly congratulates the Prime Minister, Sir Robert Borden, upon the success which has finally crowned his efforts in that direction, and pledges him its hearty support in all matters pertaining to a vigorous prosecution of the war.

Particularly will the best efforts of the Association be lent to secure compliance with the provisions of the Military Service Act, and to ensure the unqualified success of the forthcoming War Loan.

The Council of the Association further desires to congratulate the Prime Minister upon the elimination of patronage, and accepts this action as an earnest of the Government's determination to administer the affairs of the country in a non-partisan and businesslike manner.

Acknowledging the receipt of this message, Sir Robert Borden said:

I greatly appreciate the resolution passed by the Executive Council of the Canadian Manufacturers Association, and hope that you will convey to the Council my best thanks.

Why Duty Free Material for Public Works?

Plea Made to Amend Montreal Harbor Act so that Duties may no Longer be Remitted on Imported Materials

Ever since the establishment of the Harbor Commissioners of Montreal, that body by its charter has enjoyed the privilege of obtaining a remission of duties paid upon any materials or articles imported for its use. Canadian manufacturers tendering on business for the Commission in connection with which imported materials had to be employed, have found themselves practically debarred because of their inability to meet the competition of foreign firms, who were able to quote without regard to duty.

The Council of the Association has decided to make a determined effort to have this discrimination done away with. They have set forth their attitute in the accompanying resolution, copies of which have been forwarded to the Prime Minister, the Minister of Finance, the Minister of Customs, and the Minister of Marine and Fisheries.

Whereas the Act to Establish the Harbor Commissioners of Montreal makes provision for the remission to that body of all duties paid on materials or articles imported for its use, a provision of which full advantage has always and is still being taken;

And whereas this provision constantly operates to the serious disadvantage, frequently to the exclusion, of Canadian manufacturers in competing for such business as the Harbor Commissioners of Montreal have to offer;

And whereas the Parliament of Canada, when revising the Customs Tariff Act in 1907, from a desire to remove the handicaps under which Canadian producers had labored up to that time in competing for Government business, abolished the principle theretofore in effect of duty-free materials when imported for the use of any Government department;

And whereas under these circumstances it would seem impossible to justify the continuance of a privilege to the Harbor Commissioners of Montreal, which all other departments and enterprises of the Government have been forced to surrender;

Therefore be it resolved that the Executive Council of the Canadian Manufacturers Association place itself emphatically on record with the Prime Minister and all members of the Government as of the opinion that the Act to Establish the Harbor Commissioners of Montreal should be amended at the next Session of Parliament by the elimination of the clause under which remission of duties is secured to that body.

Important Amendments Were Secured

At the Instance of the Association the New Dominion Companies Act was Modified in Two Particulars, Which Will Prove of Advantage

The above Act, which went through very hurriedly in the concluding days of the last session, was modified at the instance of the Association, by the elimination of two clauses—one, which would have required the notice of incorporation to be published in three consecutive issues of a paper circulating in the territory adjacent to the company's head office; the other, which would have required any assignment of book debts to be registered with the Secretary of State, through whom, of course, the information would immediately be available to the public. The latter would have seriously affected the credit standing of many firms, who have frequently to give the bank that kind of security. Moreover, it would have required something of Federal companies which all provincial companies, excepting British Columbia, would have escaped, and to that extent it would have been discrimination.

United States Export Restrictions

Difficult Situation Arises Through Placing of Obstacles in Way of Importation of Raw Materials, but Not of Finished Products

The Tariff Department has been giving close attention to the export restrictions upon materials from the United States, in so far as they affect the manufacture in Canada of articles into the production of which imported materials must enter. In some instances it would appear that Canadian industry will suffer by reason of the fact that while the United States has placed obstacles in the way of its securing necessary supplies, that country has placed no embargo upon the export to Canada of finished articles made from those same supplies.

To safeguard the interests of Canadian manufacturers in a matter of this kind is a difficult problem. Nothing can be suggested that in the slightest degree would delay or interfere with the United States authorities in their prosecution of the war; on the other hand, in fairness to Canadian industry, the needs of the latter in the shape of raw materials should be met by the United States authorities to the same extent as the needs of similar United States industries are cared for.

With the aid of committees for each line of trade affected, a large amount of valuable material has been gathered showing the stocks of the various classes of material on hand in Canada, together with the immediate requirements, and this information has been furnished to the Minister of Trade and Commerce to assist him in negotiations he is carrying on with Washington.

Inspection and Sale Act

Measure, which will Require Certain Stamping of Packages, May be Re-introduced at Next Session of Parliament

The next Session of Parliament will likely see the re-introduction, in modified form, of a bill which was withdrawn at the last session because of the opposition of manufacturers. The measure in question was one to amend the Inspection and Sale Act so as to require all food packages to be stamped with the net weight or volume of their contents and the date of packing. The principal objections raised by manufacturers centred upon three points: (1) Valuable supplies of labels would have to be scrapped, as the Act was to come into force on January 1st next; (2) many kinds of food, such as flour and sugar, when sold by the barrel, vary in their weights when first packed, and are liable to vary still more before they reach the consumer, owing to leakage or evaporation; (3) long periods sometimes elapse between the packing of an article and its purchase by the consumer, without detriment, however, to its quality; compulsory dating would prejudice the public against such goods and depreciate their value.

The Legislation Committee will prepare a brief for manufacturers likely to be affected in this matter, and all concerned are asked to send in useful data at once.

Testing Validity of Company Licensing Laws

Association is Continuing its Efforts to Clear Up the Situation and Secure the Complete Standing of Dominion Incorporation

Through the agency of the Association a number of test cases have been instituted for the purpose of determining whether or not the provinces are within their rights in demanding that Dominion companies shall take out licenses. Three cases brought in Saskatchewan have gone through various stages to be finally appealed to the Supreme Court of Canada, where they were heard last month, and now stand for judgment. A case from Manitoba was also appealed to the Supreme Court, but at the instance of the Attorney-General for that province the hearing was adjourned until the February sittings. Cases brought in Ontario were heard by the Ontario Court of Appeal the last week in October.

The different points at issue in all the provinces have been focussed in these cases in such a way as to encourage the hope that the whole subject will be cleaned up. There are already indications that the provinces will abandon their plan of challenging Dominion incorporation. They might be the more willing to do so if effect could be given to a plan that was discussed when the new Dominion Companies Act was going through the House, whereby the provinces would surrender their powers of incorporation to the Dominion, in consideration of each receiving from the latter two-thirds or three-quarters of the charter fees collected from companies whose head offices were in their territory.

Interprovincial Reciprocity in Judgments

Endeavor is Being Made to Have Judgments Secured in One Province Made Effective, Without Re-hearing, in Other Provinces.

For some time past the Association has been trying to suggest a practical plan whereby judgments secured in one province could, without re-hearing, be registered and made effective in any other province. The chief obstacle to the accomplishment of such an object lies in the fact that judgments are more easily obtained in some provinces than in others, and it would naturally follow that provinces whose requirements are of an exacting nature would be reluctant to enter into reciprocal arrangements with provinces whose requirements were lax.

The Legislation Committee of the Association has drawn up what it considers to be a set of reasonable minimum requirements which it will ask each province to adopt, at the same time amending its Judicature Act so as to provide for the registration of judgments given in any other province whose Judicature Act contains similar or equally favorable provisions.

Switching Charges on Long Sidings

Judgment of Interest to Manufacturers is Issued by the Board of Railway Commissioners, Disallowing Special Charges

The Board of Railway Commissioners has just issued an important decision in regard to the switching service on unusually long sidings. The railway companies took the position that some limit had to be made to the switching service which was to be given free of charge, claiming that all switching and spotting movements on spurs over a certain length should receive a special remuneration, and that $2.00 a car was not an unreasonable amount for the additional service. Tariffs were issued accordingly. The Board has now disallowed these tariffs, taking the ground that switching conditions vary in connection with every private siding, as is evidenced by the fact that the railway companies protect themselves in making their agreements, by providing therein for special charges and terms for the installation and operation of the spurs; also, that it would be difficult to lay down any general charge or fix any definite limit that would be just in all cases.

The judgment is of interest to manufacturers, especially as the question has been under consideration in one form or another for some time past.

Free Time at Seaboard on Export Freight

Five Days Will Now be Allowed at Montreal on Export Freight Not Covered by Through Bills of Lading

A number of our members received advice from the railway companies that, effective September 15th, they would apply the car demurrage tariff on all traffic billed to Montreal for export, not covered by through bills of lading. The matter being brought to the attention of the Association, an application was made to the Board of Railway Commissioners for an order directing that the same regulations be put in force at Montreal, West St. John and Portland as are in effect at New York.

The Manager of the Department, with representatives of the exporters, went to Ottawa on the invitation of the

Railway Commission, and after explaining the position fully was advised that it had been suggested to the railways that this traffic be given the same free time at Montreal as was allowed on hay and lumber for export, namely, five days, and after that a charge of $1.00 per car per day.

The Board, in view of the serious car shortage, did not consider it wise to grant the free time in effect at New York, notwithstanding the fact that it was pointed out the difference in the arrangement would militate against Canadian ports, and would eventually mean a diversion of the entire traffic of Ontario to United States ports.

Word has just been received that an Order will issue immediately confirming the suggestion made by the Commission to the railways. The notice reads as follows:

Order will issue immediately giving export freight not covered by through bills of lading, the shipment of which is authorized by railway companies under export permits, five days free time at Montreal and special demurrage toll of $1.00 per car for each day thereafter.

The following illustrates the difference between what was proposed at Montreal and in effect at New York.

The charges on a car of 30,000 pounds at New York, forty-five days, would be $9.00, at Montreal for the same period $200.00.

Under the Board's Order there will still be a difference of over $30.00 per car against Canadian ports for the same period.

The matter is being followed up with a view of establishing the same conditions at Canadian ports as apply at United States ports.

Express Rates and Classification

Many Changes are Being Made by Express Companies in Connection with Ratings and Conditions of Shipments

The express companies, through the Express Traffic Association of Canada, are making many changes in connection with the ratings and conditions of carriage applicable to shipments by express. Some of the more important items which are being dealt with are as follows:

Baskets for shipments of meat and packing house products.

Elimination from scale "N" of dead rabbits, stearine, tallow, lard, stock and poultry food, plants, shrubs and seeds.

Sealing of containers for liquor.

Containers for light and bulky goods and gramophones.

Changes in the rating on furniture, N.O.S., not crated.

Specifications for the protection of sharp edges of hand agricultural implements, agricultural implement parts and tools.

Interested members have been advised in connection with these changes, and the Transportation Department is keeping in touch with the situation with a view to disposing of each question when all information is received.

War Measures

The Association's Policy on Various Important Matters Connected Directly or Indirectly with the Prosecution of the War

The policy of the Association with regard to the Military Service Act and the War Loan has been carefully explained to members in each case by circular letter.

The staff has co-operated freely with the Fuel Controller, in compiling statistics as to the soft coal requirements of Canadian industry. When there seemed a probability that coal might be refused for non-essential industries, a careful estimate was prepared of the probable consumption by such industries, and a comparison made showing that the saving which might be effected by refusing them coal would be trifling alongside of the saving that would result from a proper co-ordination of the services of our various railways, which consume practically one-third of all the soft coal imported from the United States.

Information as to the latest regulations to be observed by importers of coal, and information as to Orders in Council affecting manufacturers of foodstuffs, is given elsewhere in this issue as part of the Association's regular service.

Fire Prevention

The Memorandum Presented by the Association to the Ontario Insurance Commission Suggesting Remedies for Fire Waste

The principal reason for the high cost of insurance is that we burn up so much of the property we insure against fire. Let us concentrate our efforts upon reducing the fire waste, and rates of insurance will fall automatically.

As suggesting legislative and other remedies that might be employed towards that end, the following memorandum was recently submitted by the Association to the Ontario Insurance Commission. What is recommended for Ontario would, of course, be equally applicable to every other province in the Dominion.

1. There should be prepared a standard building code, modelled after the one brought out by the National Board of Fire Underwriters (Chicago), but suited, of course, to conditions prevailing in Ontario, and all municipalities within the province should be urged to adopt same, to the end that fire-resistive building construction may be encouraged, that adequate exit facilities from buildings may be assured, and interiors so designed and fire-stopped as to make easy the extinguishment of the fires therein.

2. The office of the Fire Marshal should be financed upon a scale that would permit of a searching official investigation into the cause of every fire involving the loss of over $1,000, in order that preventable fires may be eliminated by public education, that gross carelessness may be discouraged by appropriate punishment, and that those guilty of arson may be brought to justice.

3. All urban municipalities should be urged to provide for the systematic inspection of all buildings by uniformed firemen, to ensure the vigorous enforcement of rules for cleanliness, good housekeeping and the maintenance of safe and unobstructed exits, fire-fighting apparatus and other protective devices.

4. Where it is shown that a fire has occurred from causes that might easily have been prevented, the cost of extinguishing same should by by-law become a charge against the citizen who has disregarded fire prevention orders. Legal recognition should be given to the common law principle of personal liability for damage resulting from fires due to carelessness or neglect.

5. The wider use of the automatic sprinkler as a fire-extinguishing agent and life-saver, and the more general adoption of the fire division wall as an important life-saving exit facility, should both be encouraged in some practical manner beyond the incentive offered by lower rates of insurance.

6. A technical survey should be made of every urban municipality, by a staff of competent engineers acting under the direction of the Fire Marshal, for the purpose of determining the adequacy and reliability of the water supply, of reporting upon the efficiency of the fire department, of ascertaining whether the fire alarm systems are sufficient and in good working order, and of pointing out and guarding against the danger of conflagration. Through this agency neighboring municipalities should be encouraged in the important duty of rendering mutual aid, when required, and to this end it should be seen that hose couplings are standardized.

7. Just as the transportation of inflammable liquids and explosives is safeguarded under rules approved by the Board of Railway Commissioners, so the storage and use of these commodities should be regulated by municipal by-laws of a uniform character, drafted under the advice of competent engineers.

8. Smoking should be prohibited by statute in all parts of factories, industrial and mercantile buildings, except such rooms as may be especially approved for the purpose by Fire Departments.

9. School children and the public generally should be educated to careful habits regarding the use of fire.

10. All artisans engaged in the installation of heating apparatus or electric wiring, and all artisans following an occupation which involves the use of charcoal fires, gasoline torches, or similarly hazardous appliances, should be required to become licensed, and to undergo a qualifying examination before receiving their licenses.

Uniform Cost Accounting

Graphic Arts Section has Undertaken to Educate its Members in Proper Methods of Cost Accounting

Following the examples of powerful associations of Master Printers in the United States, the Graphic Arts Section of the Canadian Manufacturers Association has undertaken an interesting experiment in the way of educating its members in proper methods of cost accounting. Probably no trade has suffered so much from unintelligent competition as the printing trade. There are always firms in that business who think they are selling at a profit when as a matter of fact they are selling at a loss, simply because they have no reliable means of computing their overhead, and making sure that each job bears its fair share.

By employing expert cost accountants, and placing the services of these men at the disposal of members for the installation of standardized systems, the Section hopes to bring order out of chaos. The work is being tried out in Montreal first, in the expectation that the operations will be extended once they are proved to be practicable. The expenses are being met by monthly assessments on the mechanical pay roll of all Section members in the Montreal district.

New Members

List of those Manufactures who have Joined the Association During the Past Month Totals Forty-five

The strength of the Association keeps steadily increasing as the real usefulness of its work becomes better known. The recruits for one month total 45, all wide-awake enterprising people. Brandon heads the list with 18, showing very clearly that the West is forging ahead in manufacturing. The names of the new members are:

Brandon, Man.—
- W. Bourke & Co., Leather, Halters, Robes.
- Brandon Brewing & Bottling Co., Beer, Aerated Waters.
- Brandon Grocery Co., Ltd., Ciders, etc.
- Brandon Heating & Plumbing Co., Plumbing Supplies, Incubators.
- Brandon Machinery & Implement Works, Farm Machinery Foundry.
- Brandon Pump & Windmill Works, Wood Pumps.
- B. H. Campbell & Co., Mill Work.
- Canadian Lightning Arrester & Electrical Co., Lightning Arrester Apparatus, Steel Ventilators, etc.
- Cockshutt Plow Co., Ltd.—D. P. Duncan, Additional Representative.
- Codville Co., Ltd.—C. H. Spearin, Additional Representative.
- Blencarnock Farms Dairy Co., Butter and Cheese.
- Great West Firework Co., Fireworks, Gopher Killers.
- International Harvester Co. of Canada, Ltd.—J. C. Brosnahan, Additional Representative.
- McDiarmid & Clark, Ltd., Sash, Mouldings.
- Rumford Sanitary & Dairy Co., Ltd.—Geo. W. Butler, Additional Representative.
- Tungeland Creamery Co., Butter.
- Western Ice Cream & Dairy Co., Ltd., Butter, Ice Cream.
- Wheat City Tannery, Leather, Robes, Halters.

Winnipeg, Man.—
- Berliner Gramophone Co., Ltd.—H. L. Conlin, Additional Representative.
- Canada Lock Joint Pipe, Co., Concrete Pipe.
- Ford Motor Co., Ltd.—G. A. Malcolmson, Additional Representative.
- Manitoba Rolling Mill Co., Ltd.—L. T. Walls, Additional Representative.

Campbellton, N.B.—
- Shives Lumber Co., Ltd., Lumber.

Moncton, N.B.—
- Paul Lea Co., Ltd., Sash and Door Factory.

Richibucto, N.B.—
- O'Leary & Lee, Canned Lobster, Cans.

Halifax, N.S.—
- O'Leary & Lee.—G. S. Lee, Additional Representative.

Pictou, N.S.—
- Pictou Foundry & Machine Co., Winches, Boilers, Engines.

Belleville, Ont.—
- Grahams, Ltd., Dried Vegetables, etc.

Galt, Ont.—
- Shimer Cutter Head Co. of Canada, Ltd., Cutter Heads, Knives.

Toronto, Ont.—
- Acton Tool & Stamping Co., Tools, Dies, Sheet Metal Work.
- William Keating, Plumbing Supplies.
- National Equipment Co., Ltd., Water Systems, Pumps.
- Puddy Bros., Ltd., Packers.
- Reliance Shoe Co., Ltd., Boots and Shoes.
- Willard's Chocolates, Ltd., Chocolates, Boxes.

Montreal, Que.—
- Building Supplies & Brick Co., Ltd., Enamelled Concrete Brick.
- Canadian Advertising Agency, Ltd., Printing.
- Dodd-Simpson Press, Ltd., Printing.
- Glassford Bros., Ltd., Garters, Suspenders, etc.
- L'Imprimerie Canadienne, Printing.
- W. J. Kearns & Co., Printing.
- Lamontagne, Ltd.—P. E. Joubert, Additional Representative.
- Lonsdale-Bartholomew, Ltd., Christmas Cards.
- Lyon Press, Ltd., Printing.
- Sterling Press, Ltd., Printing.

Presentation to Retiring Treasurer

An Oil Portrait of Mr. George Booth will be Presented as a Mark of the Association's Appreciation of Long Services

Carrying out the instructions of the Annual Meeting, it has been arranged to mark the retirement of Mr. George Booth, as Treasurer of the Association, by presenting him with an oil portrait of himself. No one knows exactly how long Mr. Booth held the purse strings of the Association, for the records prior to the reorganization in 1899 are very incomplete. It is quite safe, however, to say that he was treasurer for twenty-five years at least. For salary he always refused to accept anything beyond the thanks of the members, whose funds he so faithfully guarded.

Mr. Booth has won for himself the lasting gratitude of the Association by his devotion to its interest; he has also won for himself the affection of a host of fellow members by his big heart and his engaging personality.

Association Finances

A Good Response is Being Made by Members Under the New Schedule of Fees and Receipts are Better

The new schedule of fees, which became operative on August 1st last, has been exceedingly well received. As was to be expected, it was pleaded as the excuse for a few resignations, but not more than fifteen all told.

A comparison of collections during August and September with the corresponding months of 1916 shows that 572 members who last year paid us only $15,645, this year paid us $22,800. From one-sixth of the total membership, therefore, the increase has been at the rate of 45¾ per cent. If this ratio is maintained throughout the year, the revenues of the Association will be swelled by $25,000, a sum sufficient to permit of a great deal of new and useful work being undertaken.

Improvements in Industrial Canada

New Features Will be Introduced into the Association's Monthly Publication to Increase its Usefulness

INDUSTRIAL CANADA is in for improvements. The Executive Committee consider that changes may be made in the typographical make-up and in its reading matter that will result in increased interest and service to the members. Considering the fact that its Editor is overseas on active service, its shortcomings must be viewed with some measure of leniency. But it can and will be brightened up, as witness the new feature which makes its first bow to readers in this "News and Views" department. Next month will see other changes. Watch for them, and write the Secretary what you think of them. Suggestions are always appreciated.



Patrol Boats Being Built in Canada for the British Government
These are the first vessels of their kind which have been constructed in their entirety in Canada

Wanted—A Canadian Merchant Marine

By EDWARD W. REYNOLDS

ONE of the big lessons learned by the belligerents in the World War is the imperative necessity of marine independence. True, in unity there is strength, but each unit must be an entity, and it is the combination of entities in an Empire like the British Empire that produces the necessary strength to combat to a successful issue those who would assail its strength. If one unit or several units are dependent upon other units for a source of strength, then this dependency is a source of weakness to the whole.

While the centralization of the world's shipping, has been, in the main, in London and the various shipping centres of Great Britain, it has brought about Britain's supremacy on the seven seas. In more peaceful times such a condition of affairs has been a source of strength to the Empire, but when war was declared, and German sea piracy inaugurated, such a condition of affairs developed into a weakness, in that it subjected the whole of the Empire's commerce carriers to attack. The concentration of British shipping by the Imperial authorities disorganized the trades of the overseas Dominions. The shortage of "bottoms" immediately experienced, or which synchronized with the outbreak of war, caused an incipient increase of general prices. There is not a manufacturer in the Dominion of Canada to-day who has not in some way or another felt the pinch of ship shortage, even if he receives his goods from other parts of the world than the actual war zone.

Shipping Needed for After the War.

It may be rightfully claimed that the war comes first at this juncture. So it does, but where does Canadian industry stand in relation to post-bellum conditions? Canada to-day enjoys a remarkably favorable trade balance. This can be maintained only by a continued excess of exports over imports. In the scramble for trade after the war, Britain and the other of the Allies will naturally want to carry most of their goods in their own ships, and the nation which owns the largest number of ships will naturally occupy the strongest position. Is it in the interest of the Canadian producers, the manufacturers, etc., to have the country dependent upon another country for the delivery of its goods? The Canadian manufacturers are being urged to prepare for the period after the war. They are asked to use every ounce of capacity, to adopt every means of increasing the amount and the range of their output. Can they be expected to do this and invest their money in manufacturing goods that cannot be delivered in the foreign markets unless another country feels disposed to loan its ships ?

What the Japs are Doing.

The Japanese are the quickest people in the world to seize upon a way out of a difficulty. Their merchant princes are already aware of the difficulties ahead in the way of ocean transportation after the war. Japan has set out to build its own merchant marine, and become entirely independent of other countries. And it intends to succeed.

It is not generally known that Japanese buyers have been scouring the North American continent for steel. These buyers have their orders, and are prepared to go any price providing they get their needs supplied. Recently a Japanese delegation visited Toronto and Hamilton, where they looked over the various steel foundries. While here they saw big piles of scrap iron and steel deposited at the various yards. They bought it, paying an unusually high price, and had it shipped to Vancouver, and maybe on to Japan. The Japanese have large steel furnaces in operation in Japan, and they will turn this scrap into shapes and plates for their merchant boats. Japan has also been endeavoring to obtain 500,000 tons of ship steel from the United States, and so far the authorities at Washington have not seen fit to permit the exportation of this quantity; first, because it may be needed for war purposes, and secondly, if Japan can build a merchant service for the Pacific trade before the United States can, where will the United States trade supremacy on the Pacific Ocean go to ?

Over 10,000,000 tons of shipping is to be constructed in the United States. The United States Board Emergency

Fleet Corporation has 1,036 vessels completed or under contract for construction in American yards. The United States authorities, even before war was declared in 1914, saw the necessity of owning its own tonnage. Therefore this country to-day has 458 ships of over 1,500 deadweight tons, with an aggregate tonnage of 2,871,359, either engaged in or capable of participating in foreign trade. There are also 117 ships of a tonnage of 700,285 of German and Austrian origin. The U. S. Shipping Board Emergency Fleet Corporation has commandeered nearly 400 steel ships of more than 2,500,000 tons which are being completed or under construction in American yards. This does not include the millions of tonnage used in the Great Lakes and coastwise trade. Therefore the total tonnage at the disposal, or that will be at the disposal of the U.S. authorities eventually, amounts to 13,700,000 tons. The people of the United States are in the war to win, and will be in the "war after the war" against the Central European Allies, to win for themselves a part of the world's carrying trade, and they are now laying a safe and sure foundation in the interest of the task yet to come.

What are Canadian shipyards doing? Everything that can be done in the way of ocean - going, Great Lakes and coastwise boats. On the Atlantic coast there are upwards of 23,000 tons of shipping under construction. On the Great Lakes there are 45,000 tons. On the Pacific coast 60,000 tons; in all 74 boats. This does not include the large number of boats under construction for the British Government. This, then, proves that Canada can provide the boats from the standpoint of constructural facilities, but there are impediments in the way.



Canada's First Cement Ship

This vessel was designed by Professor E. Brown, Department of Civil Engineering, McGill University

The shipyards throughout the Dominion of Canada are loaded with orders. New yards are springing upon all sides. Never in the history of Canada was their such a host of hives of industry as at present, but as soon as the majority of boats are completed they are sent away and delivered to oversea owners who ordered them, and facilitated their construction in Canada. For some time past, and for three or four years to come, one of the largest shipyards in Canada will be occupied building ships for British and neutral interests. As they are completed these boats will leave Canada, never to return unless with goods for importation. Canadian interests will never have an opportunity of owning or having the first opportunity of chartering them for purely Canadian trade.

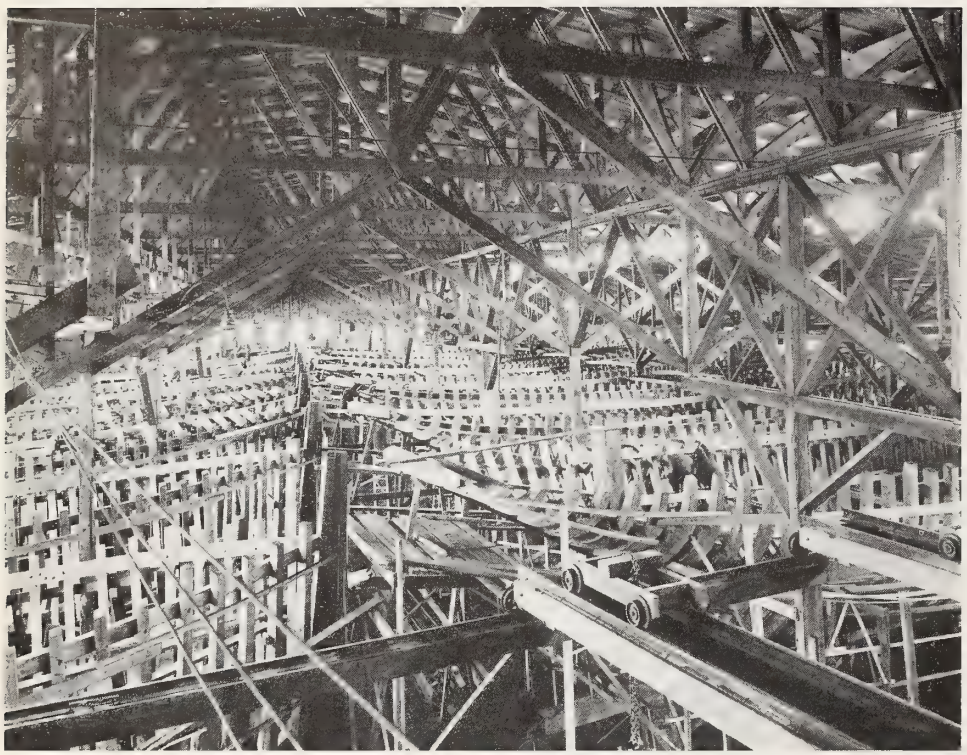
Canada can build the required ocean-going tonnage, and has in her own grasp the facilities for attaining complete independence on the ocean trade routes of the world. But she is letting her opportunity slide away. Unless a complete and radical change of policy is effected, within a reasonably short space of time, Canada will be left in a worse plight than she was in before the war. Canada's total trade for the year ending Sept. 1st was $2,416,057,129. The total exports amounted to $1,404,447,475. Although these figures include the munition exports, yet they prove that the Canadian manufacturing interests have done their part, and if the efforts to retain the trade balance is minimized by a short-sighted shipping policy, then the blame for such delinquency rests upon the powers that are responsible.

The Director of Naval Construction in Canada, Mr. J. W. Norcross, is one of the best authorities in Canada on the question, and he expresses himself in no mistaken terms on this question of finding a merchant marine for Canada. Discussing the subject with the writer recently, he said that Canada is confronted with an emergency, and unless some action is taken forthwith, it will be too late.

"You notice that every yard in Britain and the United States is loaded with ships under construction," said he. "So they are in Canada, but the boats being built here are for British and foreign owners. They should be for Canadian owners."

He went on to state that Canadian shipbuilders cannot build ships so cheaply as can the oversea shipbuilders, and Canadian capitalists cannot afford to build ships for Canadian charter like British interests can, therefore the Canadian Government, as a war measure, should step in and render assistance. Shipping rates were never so high as at present, and the Canadian authorities could afford to order ships for war purposes, and use them. After peace is declared these boats could be turned over to Canadian owners at a price the Canadians could afford to pay. This would prove a profitable proposition for the Canadian Government in this way. After the war work of these ships is completed, the authorities could fix an average pro rata charterage rate that has pertained during the war period, which would be the approximate value of these ships to the Government. This amount could be deducted from the cost of construction, and the boats could be sold for the remainder to private owners who could then afford to own and operate them for Canadian trade.

"The Government is at present financing the building of boats for the British Government, and in the end they will be the property of the British authorities, and not essentially Canadian boats," declared Mr. Norcross. "Under these circumstances Canada could do the same for Canadian shipping and Canada would be assured of a merchant marine. There



Drifters under Construction

This view gives an idea of the extent of wooden shipbuilding being carried on in Canada

are a lot of men in Canada waiting to invest their capital in Canadian boats, but cannot afford to under present conditions.

"Canada to-day is at the mercy of the regular lines, and will never be able to dominate a situation unless she has her own boats. Tramp tonnage is wanted. There should be a standardization of construction in Canada of cargo boats, and the cost of construction will be cheapened. Engines and boilers can be built in Canada, and all we need is the encouragement from the proper source."

What Canada Can Do.

The work done for the Department of Naval Construction during the past year demonstrates what Canadian efficiency and zeal can accomplish when properly directed. It is common knowledge now that big developments have taken place in Canada at the behest of the British authorities. When the complete story of this work can be told, it will amaze Canadians who discount Canada's ability to hold her own with other shipbuilding interests. When in March last Mr. Norcross was asked to take over this work of constructing, or supervising the construction of these boats, there was no precedent on which to base his actions. With the assistance of Mr. A. A. Wright, a well-known shipping man, Mr. Norcross set about providing these ships, and now they can turn out one a day. Everything is done in Canada, from finding the wood, iron and steel, to providing the engines and boilers.

Tremendous obstacles stood in the way of the work. The lumber had to be transported from British Columbia to eastern ports. The British Columbia lumbermen had to be taught what lumber was necessary, and they showed commendable enterprise in adapting their output to the specifications laid down by Messrs. Norcross and Wright. When the lumber was prepared, the right-of-way had to be obtained on the railways, and the transportation interests joined hands with the lumbermen in getting the lumber to its destination.

The pronounced steel famine was another temporary handicap, but this problem was intelligently solved, and the needed plates and shapes were soon being received from American mills. Later the shipyard operators had to be imbued with the importance of action, and they were not long in reflecting the spirit of those charged with the work. Then another difficulty arose. Engines and boilers had never been built in Canada on a scale in any manner commensurate with the requirements of the Government programme. But without engines and boilers these boats would be no good whatsoever. So to this end, the Department of Naval Service induced many Canadian firms to commence constructing on a large scale these necessary adjuncts to shipbuilding, and they succeeded in a very unexpected degree. By the end of the year about $10,000,000 will have been spent on this work, and many valuable boats will have been added to Allied shipping. What is wanted is the addition of a large number of these and other kinds of boats to the list of Canadian-owned boats, so that Canada can be assured of some opportunity of holding her own in the post-bellum struggle for a portion of the world's trade. A Canadian merchant marine is imperative, whether the boats be of concrete, wood or steel. Canadian shipyards can turn out the boats, providing the proper encouragement is given the builders and prospective owners. If this does not come to pass, it is stated on high authority, that Canada's trade balance will gradually travel over to the adverse column, and the country will place herself in a subsidiary position to the other nations of the Allied concert.

"In shipping lies victory for the Allies," declared Premier Lloyd George. In shipping lies Canada's opportunity to increase her power and influence in the world's markets, and her chances of regaining some of the expenditures she has made as her contribution towards the cost of the war. Canada's annual debt burden after the war will be about $300,000,000. This amount can only be obtained by exploiting her resources to the full and selling her products abroad, but to sell her products abroad she must have ships, and to get ships, the authorities must take the initiative. The manufacturers are doing their bit in providing the exports, others must do theirs in providing the necessary facilities to send these exports abroad.

NEW BOX AND PAIL FACTORY.

La Manufacture de Seaux et Boites des Trois Rivieres is the name of a company which has just established a factory for the manufacture of pails of all sizes, butter boxes and packing cases in Three Rivers.

CHANGE OF NAME.

St. John.—The Fowler Milling Company, Ltd., composed of Alex. L. Fowler, Phyllis W. Fowler and George A. Kimball, have taken over the property and business of the St. John Milling Company, Limited, West St. John.

Genesis of Pacific Coast Shipbuilding*

Lumber Mills of British Columbia on Brink of Ruin Until Government Saved the Situation by Assisting New Industry

By J. O. CAMERON
President, Cameron Lumber Co., Victoria, B C.

SINCE knowing nothing of the science or art of ship construction, whether wood or steel, my few remarks will be devoted to the new industry of building wooden ships at my home city, Victoria, B.C. By way of preface, I should tell you that for many years I have been engaged in lumber manufacturing. A considerable portion of the output of our mills has gone overseas to various foreign markets. If this great war had not happened with its attendant destruction of ships by mines, raiders, and submarines, I should never have thought of building any sort of ship, much less undertake to read a paper before an audience of men who are trained experts in many lines of endeavor.

Had No Ships.

I do not need to remind you that all trade and commerce was paralyzed for many months after the outbreak of the war, which condition seemed particularly depressing on the lumber business in British Columbia for fully a year, when signs of a revival of business began to appear. The mills in which I am interested began receiving numerous requests for prices on lumber, c.i.f. British, South African, and Australian ports. We soon found, however, that we were in no better situation for the reason that we could not find ships to carry the lumber to its destination.

After thoroughly considering the whole situation, I decided that the lumber mills in British Columbia were rapidly approaching financial ruin unless some means could be found for transporting a considerable portion of their output to overseas markets.

My associates and I started inquiries to find one or more ships which might be purchased or chartered at reasonable prices. Offers received were altogether unreasonable, although time has proven that we refused some great bargains. After failing to secure regular carriers for our products by purchasing or chartering, I began investigating the possibilities of building ships. I was told by naval architects and shipbuilders that wooden ships were not worth considering. They were expensive to build and poor cargo carriers. I found on the other hand that to establish a shipyard to build steel ships would require the investment of a large amount of capital, and furthermore, that the steel which would be required for building the ships would be very costly, and that no firm promises of delivery could be obtained. Therefore, for the two reasons, namely, want of capital to establish a shipyard and inability to contract for steel, I had to dismiss all ideas of building steel ships.

Wooden Ships or No Ships.

There was nothing further to consider except wooden ships or no ships. The experts said "wooden ships are not much better than no ships." I thought a great deal over the matter, and as I pondered, some of the great outstanding facts of history came to my recollection. I was reminded that the Nina, Pinto, and Santa Maria, the three ships that bore Columbus and his companions across the Atlantic to discover the Western Hemisphere, were small wooden ships. That the first American man-of-war to bear the Stars and Stripes flying at her peak, hoisted there by America's most picturesque naval commander, John Paul Jones, was the good ship Ranger. The ship which carried the dispatches to France which brought about the French-Canadian alliance, the ship which carried her redoubtable commander to victory against the British sloop of war Drake, and the Ranger were built of wood. That Lord Nelson's flagship Victory, which bore him and swept the combined navies of France and Spain from the high seas at Trafalgar was built of wood.

The thoughts of these glorious deeds led on to consideration of the peaceful pursuits which followed. I remembered that the ships which carried the commerce of Britain and America to the four corners of the earth were all built of wood. That within the memory of many people living to-day no ships had ever been built of steel. The first iron ship was launched in 1850, and the first steel ship was not built until 1880, which is within my own recollection.

I decided that if wooden ships had been useful throughout so many ages, they could still be made to serve a useful purpose. There are great forests of suitable timber in British Columbia, plenty of idle men to do the work and sawmills all but idle to cut the lumber. Nothing, therefore, remained to be done except to arrange for financing the enterprise and to find a man or men skilled in this all but abandoned industry of building wooden ships.

Shipbuilding Act Passed.

In the fall of 1915, others who had been thinking along the same lines with myself, were quite willing to join in an agitation for Government assistance to get the industry established. All public bodies in Victoria, including the Inner Harbor Association, went on record as being in favor of the Government's granting a measure of assistance. Deputations waited on the Premier and Ministers of the Province of British Columbia, and the suggestions were favorably received, with the result that an Act, entitled "An Act to Encourage, etc.," was passed and became a law on the 31st day of May, 1916. The main features of the law are:

1. To encourage the establishment of shipyards, the Government offering to lend 55 per cent. of the cost for a term of five years, to bear interest at 6 per cent. per annum.

2. To lend on security of the ships 55 per cent. of the total cost thereof, the loan likewise to bear 6 per cent. interest and to be repayable in five equal annual payments. The ships had to be built in British Columbia, and according to approved specifications which would make them suitable for overseas commerce.

3. Any ship so built, while operated in carrying British Columbia products to foreign markets, was guaranteed a net earning of 15 per cent. on the total cost. The subsidy period beginning one year after the end of the present war and extending over ten years.

I, immediately after the enactment of the said law, and my associates in the sawmill business, organized a shipbuilding company, called the Cameron-Genoa Mills Shipbuilders, Limited. All the capital was supplied by the Cameron Lumber

* Paper read at annual meeting of Pacific Coast Association of Port Authorities, held recently at Portland, Ore.

Company, Limited, and the Genoa Bay Lumber Company, Limited, which accounts for the name of the new organization.

Site at Victoria.

A site was secured on the shore of the Victoria inner harbor, and the work of erecting necessary buildings and installing machinery was rushed with all possible dispatch. Three keels were laid down in rapid succession.

But I am getting ahead of my story. In the first place, we needed an experienced naval constructor, and after searching far and wide, we discovered J. H. Price, of Portland, Ore., who was at that time putting the finishing touches on the wooden schooner *City of Portland* at St. Helens. He was induced to come to British Columbia by H. W. Brown, who was taking a most active interest in the new enterprise. Mr. Price at once saw the many advantages which Victoria had to offer for the carrying on of the industry, and he became associated with us. His plans for the ships were adopted, and he was charged with the supervision of the work. On his recommendation, Dean and Lloyd Johnston, who had been running a shipyard in Seattle, were engaged to take charge of the actual work of putting in the buildings and machinery at the yards and of carrying on the construction.

Prosperity Returns.

The Johnston brothers came to Victoria and started the work on the 15th day of June, 1916, which date, I believe, will come to be remembered as the day when prosperity returned to Victoria.

For more than a year previous to that date our sawmills had operated at a loss; business was at a standstill; men tramped the streets looking for work. It was only a few months thereafter before several hundred men were employed in the shipyard, where large quantities of lumber were being used up. New logging camps had to be opened up. Men were engaged in the woods to get out knees and spars and masts. Our mills were operated to capacity. To-day the monthly payroll at this one yard is $60,000.

The first ship, christened *Margaret Haney*, was launched on the 3rd day of February, 1917. Long before she was launched she was chartered to carry a cargo of lumber to Australia from one of the British Columbia mills. Immediately after the launching of the *Margaret Haney*, the keel of the *Malahat* was laid down. In rapid succession the ships *Laura Whalen* and *Esquimalt* were launched, and other keels laid in their places. Now the *Malahat* has been launched and will be ready to receive her cargo within a few days, which the Cameron Lumber Company and other British Columbia mills are cutting to send to Australia.

Price Plans Used.

There are now on the ways at the Cameron-Genoa shipyard four ships, two of which are being built for the British Government, according to plans prepared by the Imperial Munitions Board. They will be steam schooners and will have no sails. Mr. Price, the president and general manager of the Cameron-Genoa yards, advises that the company has undertaken to build four of the steam schooners for the British Government and has the option to build two additional.

The vessels built from the Price plans are all five-masted schooners, equipped with auxiliary gas engines and designed primarily for lumber carriers. They are 253 feet long, 44 feet beam and 21 feet depth of hold. Those which have been loaded have carried between fifteen and sixteen hundred thousand feet of lumber. Their performances have been quite satisfactory; in fact, equal in every respect to all expectations.

The ships being built for the British Government in the British Columbia yards are of an entirely different type. They will have no sails, will be propelled by 1,200-horsepower steam engines and are designed for general freight carriers. They are all to be built from one plan and will be 275 feet long over all, 44 feet beam and 22 feet depth of hold.

We have thoroughly demonstrated the utility of the wooden ship, and I contend that it is a duty that Americans and Canadians alike on this North-west Coast owe to their countries generally, and their own business in particular, to lend every assistance to the production of ships built of our native Douglas fir timber.

CAUSES OF FIRE.

In Ontario During August no Fewer than 440 Fires Were Attributed to Effect of Lightning.

The Ontario Fire Marshal's report for the month of August contains interesting information regarding the causes of the various fires which occurred during the month in this province. The number of fires dealt with is 931, and of this number only 70 are classified as "cause unknown," while 63 are described as being "temporarily unclassified," which may mean the same thing. However, the Fire Marshal appears to have been successful in discovering the cause of very many fires, the origin of which, prior to his appointment, would probably have remained obscure. Even if we combine the two above-mentioned classifications, a percentage of fourteen for "cause unknown" fires is quite low.

According to the report the heaviest cause of fire appears to have been lightning. No fewer than 440 fires out of 931 are attributed to this cause. Not one of the buildings damaged or destroyed was protected by lightning rods, which seems to be a clinching argument in favor of this method of protection. The necessity for fire protective legislation is becoming realized in many quarters, and if 440 unrodded buildings burn in one month in one province, while, during the same period, rodded buildings have a clean sheet, the suggestion of some form of compulsion along these lines does not seem unreasonable. Of the remaining causes classified, almost the whole appear to have originated in carelessness or to have been preventible. Careless use of matches accounts for no less than 63 fires, while gasoline, smoking, open lights, defective stoves and chimneys, and defective electrical installations all rank among the principal contributors to the fire waste of the province.

A detailed report of fires which occurred last year in Saskatchewan leads to similar conclusions. Out of 1,094 fires dealt with, no less than 405 are classified as "cause unknown." Lightning accounts for 125, while the great majority of the remaining fires are attributable to sheer carelessness.

BUTTER SUBSTITUTES DUTY FREE.

Order-in-Council Promulgated Last Month Requires a License for Importation of These Commodities.

On the 23rd day of October, 1917, an Order-in-Council was passed which authorizes the importation of oleomargarine, margarine, butterine, and other substitutes for butter, as defined in the regulations, without payment of any customs duties whatsoever. The order provides that the importer shall first obtain a license from the Food Controller of Canada.



One Source of Welland's Industrial Greatness

The Great Power House at Niagara Falls, whence the city derives a large part of its Hydro-Electric energy

The Industrial Evolution of Welland

How an Obscure Country Village in the Niagara District has Developed, through the Invigorating Power of Industry, into One of the Most Important Manufacturing Centres in the Dominion

By W. A. CRAICK

SUCCESS stories always make good reading. The individual who, starting in humble circumstances and in the obscurity of the commonplace, hews a pathway for himself through the obstacles interposed by circumstances, and arrives at a position of power and influence, invariably attracts attention and arouses curiosity. Others want to know how it has been done, what secrets lie at the back of such success.

The same is true, in degree, of communities. Villages, towns or cities may likewise advance from a state of dull uniformity to positions where they stand head and shoulders above their contemporaries in certain lines of endeavor. And just as the interest of the race is aroused over the success of the individual, so there is a sort of community interest in the prosperity of a municipality and a curiosity to know how such and such a place has gained importance.

Of recent years several small places in Eastern Canada, which aforetime were little better than quiet country villages, whose inhabitants led a humdrum kind of existence, have expanded with surprising rapidity into busy, aggressive towns and cities. Their names have become household words, their activities in this and that direction are chronicled in the daily press. Once having started to grow, development has continued and assessment figures from year to year show constant increases, not only in property values but in the number of the inhabitants.

The common cause of this renaissance among Canadian towns and cities has been the revivifying power of Industry. Industry originally brought these places into being, through the agency of those small local manufactories which were established at every little waterfall in the country. But Industry, in its primitive form, deserted these rural centres and for many years they were left in a somnolent condition. Then, more recently, there has come about a revival, induced to a very large extent by the introduction of hydro-electric energy on a big scale.

No more striking example of the effects produced by a well-directed and energetically-planned campaign to secure industries and, through their agency, build up a strong industrial community could be produced than that of the new city of Welland. The youngest of Ontario's cities—it was only elevated to this dignity on July 1, 1917—it is yet one of the lustiest, and its rapid growth from the country town stage to big-scale manufacturing rank is one of the romances of Canadian industry. Of course, Welland has had unusual advantages. In at least three respects it is in a surpassingly strong position. But other places could be named which are not lacking in valuable facilities and yet they have not the success to their credit, which has been the good fortune of the baby city. One must add something more than mere opportunity to the reasons for Welland's advancement and that is to be found in the determined effort put forth by the business men of the place to *make* Welland grow. Their slogan is "Watch Welland Grow," but they are quite aware that



Another Source of Welland's Strength

The Welland Canal, linking Lake Ontario and Lake Erie, passes through the centre of the city



Importance of Welland's Industries Reflected in their Office Buildings

Each of the larger plants is provided with its own special office building, of which the above are typical examples; on the left is the office of the Electric Steel & Metals Company, Limited, and on the right that of the Canadian Steel Foundries, Limited

there must be machinery at work to produce that impressive spectacle.

The greatest factor in Welland's development has unquestionably been cheap hydro-electric power. Without that advantage, there never would have been a city of Welland, with its dozens of busy factories. Complementary to the power, however, and likewise a most important influence is transportation. Had it not been for its rail and water facilities, not even cheap power would likely have been able to stir the place from its former lethargy. The combination has been exceedingly potent, so potent in fact that the claims of Welland for consideration as a prospective site for new industries are not easily set aside.

Early History of Welland.

Like most centres of population in the older-settled portions of Canada, Welland's early history is not without a certain fascination, at least to those who have a fondness for searching out the beginnings of things and resurrecting old times. The city's origin is interesting. When the Welland Canal was originally constructed in the twenties of last century, it became necessary to carry the canal, by means of an aqueduct, over the Welland River. This first aqueduct was built of wood and naturally its construction called for the exercise of considerable engineering skill, not to speak of the constructive effort involved. A settlement sprang up at the scene of the work, which remained in existence after the contract was completed, and to it was given the name of "the Aqueduct." This was in the year 1829.

Owing to the presence of the water-power, created by the construction of the canal, saw and grist mills were presently established and the Aqueduct became a small industrial centre. The next milestone in the history of the place was reached in 1842, when the Welland Canal was enlarged and the old wooden aqueduct was replaced by a stone one. The village, having by that time reached considerable proportions, was deemed worthy of possessing a more distinctive name and so, in honor, of the founder of the canal, it was definitely christened, Merrittsville.

Becomes a County Town.

A few years later, the District of Niagara, which comprised the whole of the peninsula, was broken up into the counties of Lincoln and Welland. St. Catharines was made the county town of Lincoln, but a spirited contest arose as to what place should be made the county town of Welland. Three villages competed—Crowland or Cooks' Mills, Port Robinson, and Merrittsville. The choice first fell on Port Robinson and work on the construction of the county buildings was actually started at that point, but for some unexplained reason, a change was decided on and Merrittsville became the capital. Here the corner-stone of the Court House was laid in 1855. Three years later the name of Merrittsville was changed to Welland and incorporation as a village was secured. The population was just 750.

Growth of the Settlement.

In 1874 the first sod of the present Welland Canal was turned and, while it was in process of construction, the village of Welland prospered and grew. A new aqueduct had to be built which involved much heavy construction. To such an extent did the population increase at this period, that by



Where the Union Carbide Company of Canada, Limited, Carries on its Operations



More Examples of the Type of Office Building in Use in Welland

These are usually attractive structures, with neat surroundings calculated to please the eye; on the left the illustration shows the office of the Plymouth Cordage Company, and on the right that of the M. Beatty & Sons, Limited

1878 there were enough people in the corporation to permit of an application for a town charter and accordingly Welland became a town.

The three decades from 1878 to 1908 were uneventful ones and Welland virtually stagnated. The population fell off appreciably and the town became what is known as a "dead one." There was really nothing to encourage growth. It is true, the canal passed through it and a great deal of traffic was carried by in ships and barges, but Welland was only a flag station on the route and of no account whatever as a shipper.

Coming of Hydro-Electric Power.

The tide turned in 1906 with the arrival of hydro-electric power. First came the wires of the Cataract Power Company from De Cew Falls, to be followed later by those of the Ontario Power Company, and the Hydro-Electric Power Commission of Ontario. A keen-sighted young American, B. J. McCormick, who foresaw the development that was bound to follow the harnessing of Niagara power, singled out Welland as a strategic point and decided to devote his efforts to promote its interests. He became its first industrial commissioner, and to his promotion campaign must be credited the location of many of Welland's largest plants in or near its boundaries. He was succeeded as industrial commissioner in 1915 by Louis Blake Duff.

From 1907 to 1917, Welland has grown apace. Its population ten years ago was only about 2,000. To-day it contains 8,825 people, its increase running about ten per cent. per annum. In 1906, the assessment was slightly less than a million dollars. In 1917 it amounts to $6,758,920. Equally striking has been the industrial expansion. Take, for instance, the total value of Welland's manufactured products. In 1906, the small sum of $150,000 would have covered them. Last year, they had expanded to $19,375,115, and of this total only $5,500,000 represented munitions. The industrial pay-roll was but $50,000 for the whole of 1906; it was $3,610,336 in 1916. The number of workers increased in the decade from 100 to nearly 5,000.

A fair indication of the industrial and commercial importance of a manufacturing centre is revealed in the customs statistics. The returns from the Welland office last year totalled $824,077. This was almost as much as was shown by Brantford, the fifth city of Ontario, three times as much as Brockville, twice as much as Guelph, two and a half times as much as Stratford and a shade more than the border city of Niagara Falls. Or viewed otherwise, for every thousand dollars collected last year by the Dominion in customs, five dollars was paid through the port of Welland.

The Local Hydro Commission.

It has been said that Welland owes much to the development of hydro-electric energy. In November, 1913, the then town established its own Hydro-Electric Power Commission, which secures its power from the Hydro-Electric Power Commission of Ontario. Starting that year with an appropriation of $45,000, the Commission's capital account has in four years expanded to $140,000 and will by the end of the year amount to $175,000. It has been a case of constant expansion.

Up to the present, Welland has been served by 12,000 volt lines, but these have proved entirely inadequate and a new transformer station capable of handling power from 46,000



Welland Plant of the Page Hersey Iron Tube and Lead Company, Limited



A Glimpse of the Establishment of M. Beatty & Sons, Limited

volt lines has just been completed. There are four of these high-tension lines, on steel towers, coming direct to Welland from the Ontario Power Company's plant at the Falls, and for the present these will provide ample capacity to handle all ordinary power requirements. Eventually Welland will be supplied, as its needs expand, with a 110,000 volt station, which will be made possible by the completion of the Chippewa power scheme. The city's loads are growing very fast and the time is bound to come when the system will have to go to a higher voltage, but just now the Commission is in first-class condition to handle any demands that may be made on it.

The proximity of Welland to the source of power at Niagara Falls, together with the fact that it is served by its own independent lines, renders the danger of interruption of service less likely than it would be were Welland farther away. The cost of power is also cheaper, the base rate being but $14.00. When manufacturers place their plants close to the power lines, the extra cost will be very light.

The Power Commissioners.

The Commissioners are able and public-spirited citizens. The chairman, A. D. McKay, is superintendent of the Plymouth Cordage Co., the first of Welland's big industries. He worked for years to get a municipal system and is regarded as the father of Hydro power in the city. The second member of the Commission is Robert Turnbull, a consulting engineer, who is now president and general manager of the Volta Mfg. Co., manufacturers of regulators for electric furnaces. M. Vaughan, mayor of Welland, and proprietor of the Vaughan Seed Co., is the third commissioner. The manager and engineer of the system is H. E. Timmerman.

In addition to the municipally-owned electric system, Welland is also supplied with power by the Dominion Power Company, which transmits current from De Cew Falls, twelve miles north of the city. The fact that there is competition tends to keep rates down to a low level. Natural gas is also supplied to Welland at from 25 to 30 cents per thousand feet for domestic use, with a special rate to manufacturers. Here again rival companies are in the field.

Welland's Railway Facilities.

Welland's railway facilities are equalled by very few places in Canada. Lines radiate from it in all directions. The Grand Trunk Railway's line from Bridgeburg to Detroit, over which pass in addition the trains of the Wabash Railway; the Michigan Central's air-line from Buffalo to Detroit, also used by the Pere Marquette; the Toronto, Hamilton & Buffalo Railway, direct from Welland to Hamilton and Toronto; and the Grand Trunk Railway's line from Port Colborne to St. Catharines, all pass through or close to, the city. The Canadian Northern System also has access through the Niagara, St. Catharines & Toronto Railway, an electric system, paralleling the Welland Canal.

It was pointed out by a Welland manufacturer, in connection with the railway service, that proximity to the border tends to keep freight moving more expeditiously than in sections of the country away from international influences. The railway employees are as a rule more alert and more alive to the importance of keeping freight moving rapidly. The fact also that there are so many lines competing for business renders the service particularly efficient.

The Welland Canal.

The Welland Canal is the third important factor in the city's industrial life. While the water route is not used very extensively, its presence gives Welland manufacturers the advantage of lake and rail rates. The story of the canal is an



The Electric Steel and Metals Company's Extensive Premises



Plant of Metals-Chemical, Limited, Smelters and Refiners

interesting one and, if related in detail, would provide entertaining reading. But this is not the place for it. The one important fact to-day concerns the building of the new Welland Ship Canal, which is going to revolutionize shipping on the Great Lakes. The present canal, though large enough when it was constructed, to admit of the passage of the biggest ships trading on the lakes, has long since become too small to accommodate the long upper lake freighters. To provide for their movement from Lake Erie to Lake Ontario, the new canal has been designed and is at present under construction.

It will have locks 800 feet long, 80 feet wide and 30 feet water depth. There will be seven of them, each one the duplicate of the others. Instead of being filled from the ends as is done on the existing canal, locks will be filled through large tunnels in the side-walls, from ponds alongside the canal. The banks of the canal are protected by concrete instead of stone, and many other interesting structural features have been included. The new ship canal will pass right through Welland, which will derive all the advantages accruing therefrom in the way of cheap shipping facilities.

The Welland Ship Canal.

The *Engineering Record* of New York had the following editorial on the construction of the Welland Ship Canal:

"For years the interest of those who follow the engineering of waterways has been centred in the Panama and New York State Barge Canals. They were tremendous projects, replete with details of the greatest interest to engineers, both in design and construction. Now that the work of building them is drawing to a close, interest will probably shift to the construction of the Welland Ship Canal, on which the Canadian Government will spend $50,000,000. And well will it deserve the attention previously given to Panama and New York work. Only those who have occasion to look into the Welland designs carefully appreciate fully the magnitude of the enterprise. In length it is not notable. Its locks, however, will stand with the great ones of the world. They are to have clear inside dimensions of 80 x 800 feet, with 30 feet of water on the sills, while each of them will have the great lift of 46½ feet. At Thorold will be constructed a flight rivalling that at Gatun, for though the locks themselves will not accommodate as big a vessel the lift will be greater. At this point there will be three of them in flight, each with a lift of 46½ feet, or a total lift of 139½ feet. Moreover, at Thorold the flight is double, one for upbound and the other for downbound vessels. In details the locks will be very interesting. The most unusual feature will be the use of swinging single-leaf gates. The adoption of this design followed only after a most careful study of all other alternatives."

Industries in Operation.

Welland's first large industry was the Plymouth Cordage Co., which located at this point in 1905. This industry has been noted for the welfare work it has carried on among its employees. When it came to Welland, the place was very small and housing accommodation was inadequate. The company accordingly acquired a large tract of land adjoining its plant and erected a large number of attractive houses, which are rented to employees at a moderate rate. These houses have ample grounds around them and make pleasant homes for the workpeople.

In addition a club house for the entertainment of employees, with dancing hall, billiard rooms, etc., is provided, and in summer an athletic field, with grand stand and dressing rooms. Tennis courts and a skating rink are also included in the welfare plant. It has been the custom of the company to hold a fall fair each year, at which prizes are awarded for the best garden products. Altogether the company has done splendid work on behalf of its employees.



Canadian Billings-Spencer, Limited, Plant of the Canada Foundries & Forgings, Limited



Canning Factory of John Goodwillie & Son



Plant of the Volta Manufacturing Company

The M. Beatty & Sons, Limited, plant was the second Welland industry. This establishment is located on the bank of the canal and has now grown to large proportions. The company specialize in hoists, dredges, steel scows, clamshells, derricks, submarine rock drills and mining machinery. Adjoining them there has recently been established the plant of Welland Shipbuilding Co., which will engage in the construction of ships.

The Canadian Steel Foundries, Limited, operate a large plant near the Michigan Central Railway station, their product being steel castings, couplers, coil and elliptic springs, steam and electric railway track work, bar steel, etc.

Canada Foundries & Forgings, Ltd., have two plants in the city, both of which have been engaged extensively on munition work. The company is now doing heavy work in marine engines, a department of activity which has big possibilities.



Canada Forge Plant of the Canada Foundries & Forgings, Limited



Plant of the Electro Metals, Limited

Agricultural implements are manufactured in Welland at the plant of the Dain Manufacturing Co., Limited, brands made being the "John Deere," "Von Brunt Drills" and "Dain Hay Tools."

The Electric Steel & Metals Co., Limited, now known as the Electric Steel & Engineering Limited, being an amalgamation of the former with the Wabi Iron Works, New Liskeard, and the Borring Hydraulic & Engineering Co., Lindsay, was formed in 1913 for the manufacture of steel castings by the electric method. The company is running the plant almost entirely on munitions, and 278 hands are on the pay-roll. There are two electric furnaces in operation. This company, like the Plymouth Cordage Co., has gone in extensively for welfare work.

At the plant of the Electro Metals, Limited, ferro-silicon and electrodes are manufactured, while at the Volta Mfg. Co., the product is electric regulators, electric winches, etc.

One of the newest industries is the Empire Cotton Mills, Limited. Here ducks, seamless bags, bag cloths, gray cotton fabrics and twines are manufactured. The plant is right up-to-date in construction and equipment and contains 25,000 spindles and 564 looms, giving a capacity of about 7,000,000 yards. There are 450 hands employed, of whom 60 per cent. are female.

The Metals-Chemical, Limited, are engaged in the manu-



Where the Dain Manufacturing Company make their Agricultural Implements



Manufacturers and Their Friends at Play

A pleasing glimpse of the club house and bowling greens of the Welland Club, which are located on the banks of the canal

facture of chemicals, while the Union Carbide Co. of Canada operates a large plant making acetylene and calcium carbide. Overalls are manufactured by the H. S. Peters Co., Limited; and canned goods are put up by John Goodwillie & Sons. A branch of the Chipman-Holton Knitting Co., of Hamilton, produces hosiery. There is also located in Welland one of the plants of the Page-Hersey Iron, Tube & Lead Co., Limited, at which are made wrought, black and galvanized pipe.

A complete list of things made in Welland runs up in the hundreds and includes such important articles as automobiles, agricultural machinery, brick, binder twine, boilers, coal stoves, cotton goods, canned fruit, cement blocks, contractor's machinery, dredges, derricks, electric trucks, engines, furnaces, gas ranges, hosiery, hoists, knitted goods, launches, overalls, rope, saws, sash and doors, scows, twine, underwear, etc.



Welland's Central School

This is one of three public schools in the city, which have been enlarged and modernized to meet the needs of an increasing population

While the promotion of industry has been the main objective of the people of Welland, other essentials have not been neglected. A good deal of attention, for instance, has been paid to the improvement of streets. Only five years ago the place was notorious for its muddy thoroughfares. To-day all the principal streets have brick, wood block or tarvia pavements and each year sees an addition to the total of paved roadways, which now extend to well over three miles. There are over 28 miles of concrete walks in the municipality and 15 miles of sewers. All through the county of Welland the roads are good, much money having been spent by the county authorities on road work. This makes motoring a pleasure and adds to the attraction of Welland as a place of residence. Welland's water supply is derived from the canal. A new pumping station was erected in 1912 at a cost of $75,000. The total water mains laid up to last year within the corporation limits were 25¾ miles, with an extra 1½ miles outside the town limits. During 1916, 731,174,560 Imperial gallons were pumped, much of which was used in the factories.

The cause of education has not been neglected. Welland contains three public schools and a high school. The latter is a brand new institution, completed two years ago at a cost of $80,000. It is a substantial building of red brick and is equipped with all the essentials for effective high-school work. There are numerous classrooms, laboratories, studies and offices, with equipment for the teaching of commercial work, domestic science and manual training. A fine large gymnasium extending from the basement to the second story is a prominent feature. The building is steam-heated, electric-lighted and furnished with a modern ventilation system. Students destined to industrial, commercial and agricultural work find their requirements well met by the school facilities, industrial evening classes being held for the benefit of workers in the factories.



Education is Not Neglected

A glimpse of Welland's new $80,000 high school, in which night industrial classes are accommodated

The coming of the factories to Welland has meant much

more than a growth of urban population, with all its attendant advantages in the shape of increased business for merchants and more work for builders and laborers. Its effect has permeated the entire county of Welland. The most obvious result of the industrial expansion has been to alter the whole complexion of agricultural life for many miles around the city.

This development may be concretely exemplified in the case of the market, an institution of which the citizens are not a little proud. In 1905, before the industrial era dawned, the market was held on a small plot of land, where the post-office now stands. If as many as 35 farmers backed their carts of produce into this little square, it was considered an exceptionally busy day. Prices ruled low and often the market was so glutted with supplies that the farmers were compelled to peddle their wares up and down the residential streets in order to dispose of them.

To-day Welland market has long since outgrown the little square beside the canal and is held on a much larger piece of ground. It is attended regularly by from 130 to 150 farmers who experience no difficulty in selling their loads at prices that are said to rule even higher than those prevailing in Buffalo and Toronto. So active did this market become that a few years ago it was necessary to pass a by-law restricting commission merchants from buying in it before nine o'clock so that the townspeople might have a chance to purchase their supplies before the best produce was snapped up.

U.S. WAR REVENUE TAX LAW.

Important Interpretation of the Three Per Cent. War Tax Being Levied on Freight Tolls.

The war tax of 3 per cent. which is being levied by the United States on freight tolls, effective November 1st, does not apply on shipments of freight consigned to points in Canada or Mexico, neither does it apply to shipment consigned to foreign ports or places. If, however, shipments intended for export be consigned to a port agent and moved to the port on a port bill of lading, transportation costs on it will be subject to the tax.

There is a tax equivalent to 8 per cent. for the transportation of persons from United States to points in Canada or Mexico, when the ticket is sold or issued in the United States. In cases where a fare is purchased from a point in Canada to a point in United States, the Canadian tax applies.



Launch of the Steamer "Tento" at Toronto

OPPORTUNITIES IN VENEZUELA

Visitor to Headquarters of the Association Tells About Openings for Canadian Trade in this South American Republic

Some interesting items of information with regard to trade in Venezuela have come to the notice of the Association recently.

In the first place the head office had a call from Mr. R. Cheney Hart, H.B.M. Consul in Cindad, Bolivar, who has been granted the privilege of conducting business for himself by the Government. Mr. Hart states that there is a very favorable opening for Canadian manufacturers in Venezuela. Not only are many classes of goods required, but facilities for handling transactions have been created which place his district in Venezuela on a par with the West Indies, inasmuch as through bills of lading can be given on goods leaving Atlantic ports on any line via Trinidad, and a branch of the Royal Bank of Canada has been established in Cindad which renders the financing of this trade easy. Mr. Hart is prepared to undertake the representation of Canadian manufacturers and hopes for considerable development of business between the two countries. He will be glad to enter into correspondence with any interested manufacturers.

We have also received a letter which itemizes a number of different conditions necessary for the successful carrying on of business in Venezuela.

"The leading merchants here with whom I have conversed show interest in the possible expansion of Canadian trade in this and neighboring S. A. republics, and express the conviction that Canadian products, if properly introduced and advertised, should be able to compete with considerable advantage with those from the United States.

"There are, however, some necessary conditions that must be fulfilled. Information regarding Canada and its manufactures is required in convenient form, in the Spanish language. Catalogues and price lists in French may be understood by a few, but for general use amongst the seventy or eighty millions of Spanish-speaking people in Latin America, they must be in Spanish. In all this it should be borne in mind, that, at least as far as the northern and western S. A. republics are concerned (with a population, approximately, of twenty millions), Canada and its trade possibilities are about as little generally known, as e.g. those of the planet Mars.

"By way of suggestion I might say that the local press in the larger centres of population could well and advantageously be employed, systematically and continuously, for the diffusion of information regarding Canada and its resources. The United States is in this way kept to the front, but, so far as Venezuelans and South Americans generally are concerned, British North America might as well be off the map.

"Another requirement, and one which might be met with comparatively small cost, is an exhibition, in the capital cities of these S. A. republics, of Canadian products for which there is a market, as e.g. machinery in general, paper, flour, canned goods, automobiles and accessories, hardware, paints, rubber goods, etc., etc. Such articles for exhibition purposes would be allowed to enter duty free, their non-negotiable character being guaranteed in conformity with regulations established by the various Governments. Expense of rent and lighting is comparatively low, and there would be required only a reliable native person to assist the foreign representative in charge. Such a collection of sample products should be selected and packed with a view to facilitate its transference from one country to another. As far as I am aware no U.S. corporation or association has attempted anything of the kind. There is a Pan American agency in this city, but the articles exhibited consist almost solely of electrical fittings and supplies. A general exhibit of Canadian products would therefore be unique and of immense value in cultivating and developing better and closer trade relations.

Uncle Sam's Big Conservation List

Commodities which the United States Government Needs for the Successful Prosecution of the Great War and the Export of which it is Carefully Regulating

Published for the Convenience of Members of the Association by the Tariff Department

IN the following statement, approved by the United States War Trade Board, are given the additions to the conservation list, complete conservation list, additions to articles requiring license, and a complete list of articles requiring a license:

The War Trade Board announces a list of commodities, in addition to those published on September 28, 1917, whose conservation is necessary on account of the limited supply and the needs of the United States in its successful prosecution of the war. Accordingly, the board has practically prohibited the exportation of these articles, the list of which follows:

Amorphous phosphorus.
Babbitt metal and other antifriction metals.
Bichromate of potash.
Bismuth salts.
Boring machines, horizontal.
Boring mills, vertical, all sizes.
Brass, articles of.
Bronze, articles of (unless containing less than 10 per cent. copper).
Cable (copper or insulated).
Caustic potash.
China wood oil.
Chrome steel.
Chromium—
  Ore.
  Any metal, ferroalloy, or chemical extracted therefrom.
Cobalt—
  Ore.
  Any metal, ferroalloy, or chemical extracted therefrom.
Copper—
  Ore.
  Any metal, ferroalloy, or chemical extracted therefrom unless less than 10 per cent. of copper.
Crucibles.
Diamonds (industrial).
Drill presses, except sensitive.
Drilling machinery, radial.
Ferrochrome.
Ferrovanadium.
Ferrocobalt.
Ferromolybdenum.
Ferronickel.
Ferrotungsten.
All manufactured articles containing flax which are manufactured in the United States.
Flannelette raisings (wool).
Grinders, internal, plain, and universal.
Graphite electrodes.
Hair, animal.
Hardware, finished articles containing more than 10 per cent. of copper.
Hydrofluoric acid.
Jute and products (including cloth, bags, gunnies, twine, etc.).
Lathes, 24-inch swing and larger.
Linen.
Manganese—
  Ore.
  Any metal, ferroalloy, or chemical extracted therefrom.
Milling machines, plain and universal, except hand millers.
Mercury.
Molybdenum.
Molybdenite.
Naxos emery.
Nickel and nickel alloys.
Nickel (more than 5 per cent.).
  Ore.
  Any metal, ferroalloy, or chemical extracted therefrom.
Plumbago, (graphite, imported, and articles manufactured therefrom).
Planers, 30 inches and larger.
Peas, including seed.
Sal ammoniac.
Sheelite.
Sodium phosphate.
Solder.
Tin and any metallic alloy containing tin.
  Chloride of tin.
  Tin ore.
  Tin canisters, except when used as food containers.
  Tin boxes, except when used as food containers.
  Tin foil.
Tungsten ore: Any metal, ferroalloy or chemical extracted therefrom.
Type metal.
Vanadium.
Wolframite.
Wool, raw.
Wool, scoured.
Wool products suitable for military purposes.
Wool and worsted yarns.
Wool and worsted tops.
Wool and worsted noils.
Wool and worsted waste.
Yellow phosphorus.

Export licenses may be granted, however, for the above-mentioned articles when they are destined for actual war purposes or when they will directly contribute thereto. Licenses may also be granted in certain unusual cases where such exports will contribute directly to the immediate production of important commodities required by the United States, and also in certain other cases where these commodities may be exported in limited quantities without detriment to the United States.

Shipments in Transit to Canada.

To facilitate exports to Canada and Newfoundland, there has been heretofore issued, through the customs service, a special license whereby goods have been permitted to enter Canada and Newfoundland without an individual license for each shipment, except in the case of the commodities which the board has heretofore found it necessary to conserve, and for whose exportation individual licenses have been required, as stated in the several announcements made by the board from time to time. With respect to the commodities above-mentioned, which are now added to the "Conservation list" in accordance with this statement, an individual export license will likewise be required for each shipment of such additional conserved commodities, which is covered by ocean and for railroad bill of lading marked "For export" and dated on or after October 20, 1917. This date has been fixed in order to avoid interference with goods in transit.

Complete Conservation List to Date

For the convenient reference of shippers, the board takes this occasion to publish the "Conservation list," complete to date, including the commodities which it has heretofore been found necessary to conserve, as well as the commodities now added to the "Conservation list." The complete "Conservation list" follows:

Acetone.
Alcohol.
Aluminum.
Ammonia salts.
Amorphous phosphorus.
Ammonia nitrate.
Anhydrous ammonia.
Animal fats.
Arsenate of lead.
Arsenate of soda.
Babbitt metal and other antifriction metals.
Bichromate of potash.
Bismuth salts.
Boring machines, horizontal.
Boring mills, vertical, all sizes.
Brass, articles of.
Bronze, articles of (unless containing less than 10 per cent of copper).
Boiler tubes (iron and steel).
Boring mills, vertical, 42 ins. and larger.
Butter.
Cable (copper or insulated).
Carbolic acid (phenol).
Castor oil and castor beans.
Caustic potash.
Caustic soda.
China wood oil.
Chrome nickel steel.
Chrome steel.
Chromium—
  Ore.
Any metal, ferroalloy, or chemical extracted therefrom.

Cobalt—
Ore.
Any metal, ferroalloy, or chemical extracted therefrom.
Copper—
Ore.
Any metal ferroalloy, or chemical extracted therefrom unless less than 10 per cent of copper.
Cotton linters.
Cottonseed oil.
Crucibles.
Cyanide of sodium.
Diamonds (industrial).
Drill presses, except sensitive.
Drilling machines, radial.
Ferrochrome.
Ferrocobalt.
Ferromolybdenum.
Ferromanganese.
Ferronickel.
Ferrosilicon.
Ferrotungsten.
Ferrovanadium.
Flannelette raisings (wool).
Flax and all manufactured articles containing flax which are manufactured in the United States.
Food grains (including, among others, wheat, barley, corn, rice, oats, and rye).
Glycerine.
Grinders, internal, plain and universal.
Graphite electrodes.
Hair, animal.
Hardware, finished articles containing more than 10 per cent. of copper.
Hydrofluoric acid.
Iron and steel plates, including ship, boiler, tank, and other iron and steel plates 1-8 inch thick and heavier and wider than 6 inches, whether plain or fabricated.
Jute and products (including cloth, bags, gunnies, twine, etc.).
Lard.
Lard compound.
Lathes, 24-inch swing and larger.
Linen.
Manganese—
Ore.
Any metal, ferroalloy or chemical extracted therefrom.
Milling machines, plain or universal, except hand millers.
Mercury.
Mercury salts.
Molybdenum.
Molybdenite.
Naxos emery.
Nitrate of soda.
Nitric acid.
Nickel and nickel alloys.
Nickel (more than 5 per cent):
Ore.
Any metal, ferroalloy, or chemical extracted therefrom.
Nitric salts.
Oil-well casing.
Oil cake.
Oil-cake meal.
Phosphoric acid.
Phosphorus.
Pig iron.
Planers, metal working, 36 inches wide and larger.
Planers, 30-inch and larger.
Plumbago (graphite, imported, and articles manufactured therefrom).
Peas, including seed.
Potash and chlorate of potash.
Potassium salts.
Sal ammoniac.
Saltpeter.
Scrap iron.
Scrap steel.
Searchlights and generators (suited for army and navy use).
Sheelite.
Soaps.
Sodium phosphate.
Sodium sulphite.
Solder.
Spiegeleisen.
Stearine and stearic acid.
Steel billets.
Steel blooms.
Steel ingots.
Steel sheet bars.
Steel slabs.
Sugar.
Sulphate of ammonia.
Sulphur and sulphuric acid.
Superphosphate.
Tallow.
Tin and any metallic alloy containing tin—
Chloride of tin.
Tin ore.
Tin canisters, except when used as food containers.
Tin boxes, except when used as food containers.
Tin foil.
Tin plate.
Tungsten ore.
Tungsten—
Ore.
Any metal, ferroalloy, or chemical extracted therefrom.
Toluol.
Type metal.
Vegetable oils.
Vanadium.
Wireless apparatus.
Wheat.
Wheat flour.
Wolframite.
Wool, raw.
Wool, scoured.
Wool, products suitable for military purposes.
Wool rags.
Wool and worsted yarns.
Wool and worsted tops.
Wool and worsted waste.
Wool and worsted noils.
Yellow phosphorus.

Additions to Articles Requiring Licenses

The attention of shippers is directed to the fact that the following commodities have been recently classified as requiring an export license when shipped to:

Abyssinia.
Afghanistan.
Argentina.
That portion of Belgium not occupied by the military forces of Germany, or the colonies, possessions, or protectorates of Belgium.
Bolivia.
Brazil.
China.
Chile.
Colombia.
Costa Rica.
Cuba.
Dominican Republic.
Ecuador.
Egypt.
France, her colonies, possessions, or protectorates.
Guatemala.
Haiti.
Honduras.
Italy, her colonies, possessions, or protectorates.
Great Britain, her colonies, possessions, or protectorates.
Japan.
Liberia.
Mexico.
Monaco.
Montenegro.
Morocco.
Nepal.
Nicaragua.
The colonies, possessions, or protectorates of the Netherlands.
Oman.
Panama.
Paraguay.
Persia.
Peru.
Portugal, her colonies, possessions, or protectorates.
Roumania.
Russia.
Salvador.
San Marino.
Serbia.
Siam.
Uruguay.
Venezuela (excluding any portion of the foregoing occupied by the military forces of Germany or her allies), or any territory occupied by the military forces of the United States or by the nations associated with the United States in the war.

In order to avoid interference with goods in transit no export license will be required for such shipments of these commodities as are covered by an ocean and for railroad bill of lading marked "For export" and dated on or before October 20, 1917. This list may be regarded as supplementary to the one already published:

Alum.
Amorphous phosphorus.
Bichromate of soda.
Bismuth salts.
Brass and articles of.
Bronze and articles of.
Chrome alum.
Epsom salts.
Ferric alum.
German silver.
Glauber salts.
Hydrofluoric acid.
Hyposulphite of soda.
Nicotine sulphate.
Paraffin wax.
Peas (including seed).
Plated ware.
Sal ammoniac.
Silver-plated ware.
Sodium fluoride.
Sulphate of quinine.
Toys, containing lead, zinc, tin, aluminum.
Yellow phosphorus.
Zinc oxide, dry.

The board has determined that the following benzol, phenol, and toluol derivatives will require an export license when shipped to any country of the world. Such of these, however, as are not on the "Conservation list" will proceed to Canada as heretofore under the special license issued through the Custom Service:

Acetanilide.
Aniline oil.
Aniline salts.
Amido azo benzol.
Amido phenol (para amido phenol).
Benzol.
Betanapthol.
Carbolic acid (phenol).
Chlorbenzol (mono chlorbenzol).
Cresols.
Dinitrobenzol (metadinitrobenzol).
Dinitrochlorbenzol.
Dinitrophenol.
Dimethylaniline.
Diphenylamine.
Nitroacetanilide (paranitroacetanilide).
Nitroaniline.
Nitrobenzol.
Nitrophenol (paranitrophenol).
Nitrotoluol—
Orthonitrotoluol.
Paranitrotoluol.
Nitroxylols.
Nitrocresols.
Nitronapthalenes.
Nitrochlorbenzol (paranitrochlorbenzol).
Nitrosodimethylanline.
Nepthalene.
Paranitraniline.
Phenol (carbolic acid).
Tetranitroaniline.
Tetranitromethylaniline.
Tetranitroethylaniline.
Toluol.
Trinitrotoluol.
Toluidine—
Orthotoluidine.
Paratoluidine.
Xylidine.
Xylol.

Complete List of Articles Requiring a License at Present

The board has prepared the following list, comprising commodities which have already been determined to be included under the general headings mentioned in the second division of the proclamation of August 27th, 1917. Additions may be made to this list if it is determined that other articles are properly included under these general headings:

Abrasives (all artificial).
Acetone.
Acetanilide.
Acid hydrofluoric.
Acid phosphates.
Aeronautical instruments.
Aeronautical machines.
Alcohol.
Aloxite wheels.
Alloy steel.
Alum.
Aluminum and articles made entirely thereof.
Alundum grain.
Alundum wheels.
Amido azo benzol.
Amido phenol (para amido phenol).
Ammonia and its salts.
Ammonia anhydrous.
Ammonia nitrate.
Ammunition.
Amorphous phosporus.
Aniline oil.
Aniline salts.
Angles—
  Iron.
  Steel.
Animal fats.
Antiaircraft instruments, apparatus, and accessories.
Antimony.
Antimony black.
Antifriction metal.
Arms.
Arsenate of lead.
Arsenate of soda.
Ash, wood.
Auto grease.
Automatic guides.
Babbitt metal.
Bacon.
Barium nitrate.
Barley.
Belting, leather.
Benzene.
Betanaphthol.
Blue stones (copper sulphate).
Benzine.
Beams (of all sizes)—
  Iron.
  Steel.
Benzol and its derivatives.
Bichromate of soda.
Billets, steel.
Binder twine (for reaping machines).
Binocular (for marine use).
Birch wood.
Blancfixe (sulphate of barium).
Blooms, steel.
Bleached soda pulp.
Boilers, steam.
Boiler fitting.
Boiler plates.
Boiler plugs.
Boiler pipes.
Boiler tubes—
  Iron.
  Steel.
  Copper.
Bone, ground.
Bone, meal.
Boots and shoes of leather.
Bolt heading machines.
Bone, flour.
Bookbinders' tin stitching wire.
Boring mills (vertical, 42 inches and larger).
Boring tubes.
Broching machines, with countershaft.
Bromide ammonium.
Bronze and articles of.
Bunkers.
Buckram (flax).
Burlap.
Butter.
Cane knives.
Can maker machines.
Carbons, electric light.
Carbolic acid (phenol).
Car seals.
Carborundum.
Carrier and other pigeons.
Casings, oil well.
Castor oil.
Castor beans.
Caustic soda.
Cattle manure.
Cellulose.
Cereals (oatmeal, rolled oats).
Channels (all sizes)—
  Iron.
  Steel.
Cheese.
Chlorate of potash
Chlorbenzol (mono chlorbenzol).
Chrome alum.
Chromium (for steel alloy).
Chrome nickel steel.
Chlorate of potash.
Clothing, leather.
Coal.
Cocoanut, dessicated.
Cod-liver oil.
Coke.
Condensed milk.
Condensers.
Coin—
  Silver.
  Gold.
Copper and articles made entirely thereof.
Copper bars.
Copper ingots
Copper plates.
Copper rods.
Copper strap.
Copper sheets.
Copper sulphate.
Copper tubes.
Copper wire.
Copper wire insulators.
Cotton.
Cotton linters.
Copra.
Corn (maize).
Corn (flour).
Corn meal.
Corn oil.
Corrugated copper gaskets.
Corundum wheels and stones.
Cottonseed meal.
Cottonseed oil.
Cresols.
Crisco.
Crucibles.
Cyanamide.
Cyanides (all).
Cyanide of sodium.
Diamonds, industrial.
Dimethyl aniline.
Dinitrobenzol (metadinitrobenzol).
Dinitrophenol.
Dinitrochlorbenzol.
Diphenylanine.
Drill presses, except sensitive.
Drilling machines, radial.
Dry blood.
Drill chucks.
Dry paste flour.
Drilling implements and machinery with accessories for oil wells.
Drill rods.
Drill presses.
Drills (Carbon and high-speed twist).
Electrical equipment (all).
Electric generators.
Electric lamps.
Emery and emery cloth.
Emery wheels.
Engines (except locomotives).
Epsom salts.
Ether.
Exhaust pipes.
Explosives.
Fan belts (if leather).
Fats (all).
Ferrochrome.
Ferric alum.
Ferrocyanide potash.
Ferromanganese.
Ferrosilicon.
Ferrotitanium.
Ferrovanadium.
Fertilizers, including—
  Cattle and sheep manure.
  Nitrate of soda.
  Poudrette.
  Potato manure.
  Potassium salts.
  Land plaster
  Potash.
  Cyanamide.
  Phosphoric acid.
  Phosphate rock.
  Superphosphate.
  Chlorate of potash.
  Bone meal.
  Bone flour.
  Ground bone.
  Dried blood.
  Ammonia and ammonia salts.
  Acid phosphates.
  Guano.
  Humus.
  Hardwood ashes.
  Soot.
  Anhydrous ammonia.
Films (all)—
  Moving pictures.
  Scrap.
Fire box, boiler.
Fish—
  Fresh.
  Dried.
  Canned.
Flake graphite.
Flax.
Flour.
Food grains: Flour and meal therefrom.
Fodder and feeds.
Fuel oils.
Gasoline.
Gauges for steam boilers.
German silver.
Glass reflectors.
Glycerin.
Glucose.
Graphite.
Grease of animal or vegetable origin.
Grinders, internal, plain, and universal.
Grinding heads.
Grindstones, power-driven.
Ground bone.
Guano.
Hair, animal.
Hand-lantern oil.
Hardwood ashes.
Harness.
Hemp and manufactures thereof.
Hides.
High-speed steel.
Hoof oil.
Humus.
Hulls, fodder.
Hydrofluoric acid.
Hydroquinine.
Hyposulphite of soda.
Iron boiler tubes.
Iron scrap.
Iron and steel shapes—
  Beams of all sizes.
  Angles, all sizes.
  Channels, all sizes.
  Tees and zees.
Iron, fabricated, structural, including beams, channels, angles, tees and zees, and plates, fabricated and shipped knocked down.
Iron plates, including ship, boiler, tank and all other iron plates 1-8 of an inch thick and heavier and wider than 6 inches and circles over 6 inches in diameter. This includes No. 11 U. S. gauge but not No. 11 B. W. gauge.
Instruments—
  Aeronautical.
  Antiaircraft.
  Optical.
  Electrical.
Ingots, steel.
Jute, and all manufactures thereof.
Jute cloth.
Kerosene.
Khaki clippings.
Knife-grinding machinery (power-driven).
Knives (sugar-cane).
Land plaster.
Lard.
Lard compound.
Lathes.
Lathe tools.
Lead.
Leather.
Leather belting.
Leather clothing.
Leather, sole.
Leather, upper.
Lenses, optical.
Linseed oil.
Linseed.
Livestock.
Loopers.
Looper cutters for knitting machines.
Lubricants.
Machines, aeronautical (and instruments), their parts and accessories.
Engines (except locomotives)—
  Condensers.
  Metal working.
  Woodworking.
  Oil-well drilling.
  Pumps.
  Turbines.
Machetes.
Machine tools.
Manganese (for alloy steel).
Magnifiers, optical.
Mahogany wood.
Malt.
Manganese oxide.
Magnesium sulphate.
Manilla rope.
Manure, cattle.
Manure, sheep.
Meats, all.
Meat juice.
Meats and fats, including—
  Poultry.
  Cottonseed oil.
  Corn oil.
  Copra.
  Dessicated cocoanut.
  Butter.
  Fish, fresh, dried, and canned.
  Edible or inedible grease.
  Of animal or vegetable origin.
  Linseed oil.
  Lard.
  Tinned milk.
  Peanut oil.
  Peanut butter.
  Rapeseed oil.
  Tallow.
  Tallow candles.
  Stearic acid.
  Pigtails.
Mercury and its salts.
Mercury salts.
Metals—
  Antifriction.
  Babbitt.
Metal working machine.
Microscopes.
Milk, tinned and powdered, not fresh.
Milling cutters.
Mineral colza.
Mineral oil.
Mirror iron.
Molasses.
Molybdenum.
Motors—
  Steam.
  Gas.
  Electric.
Naphtha.
Naphthalene.
Naphthaline balls.
Neat's foot oil.
Nestle's food (infants).
News paper.
Nickel
Nicotine sulphate.
Nitroacetanilide (paranitroacetanilide).
Nitrate silver.
Nitroaniline.
Nitrobenzol.
Nitrate of ammonia.
Nitrophenol (paranitrophenol).
Nitric acid.
Nitrotoluol—
  Orthonitrotoluol.
  Paranitrotoluol.
Nitric acid and its salts.
Nitroxylois.
Nitrocresols.
Nitrate of soda.
Nitronaphthalenes.
Nitrochlorbenzol (paranitrochlorbenzol).
Nitric salts.

Nitrosodimethylaniline.
Nitrate of potash.
Nitrogen lamps.
Oak, wood.
Oakum.
Oats.
Oatmeal.
Oil cake.
Oil-meal cake.
Oil-well casing.
Oil-well drilling implements and machinery and accessories.
Optical glass.
Optical—
Instruments.
Reflectors.
Oils, including—
Fuel..
Lubricating.
Lantern.
Naphtha.
Benzine.
Red.
Kerosene.
Gasoline.
Rapeseed.
Cylinder.
Oleo.
Oxide of zinc.
Paper—
Newsprint
Book.
Paraffin oil, wax.
Paranitraniline.
Peanuts.
Peanut butter.
Peanut oil.
Petroleum.
Petrolatum.
Petroleum jelly.
Phenol (carbolic acid) and its derivatives.
Phosphoric acid.
Phosphate rock.
Phosphate (sodium).
Phosphorized, 5 per cent., tin.
Phosphorus.
Pigeons, carrier, and others.
Pig iron.
Pilchards, canned.
Pillar presses, power driven.
Planers.
Planes, (metal working 36 in. and larger).
Platinum.
Plated ware.
Plumbago.
Potash.
Potash alum lumps.
Potash and its salts.
Potassium bromide crystals.
Potassium chlorate.
Potassium permanganate.
Potassium salts.
Potato manure.
Potential transformers.
Poudrette.
Poultry.
Prawn.
Print paper.
Profilers.
Prussiate soda.
Propeller shaft.
Pulp boards.
Pumps, steam and electric-driven.
Primers.
Potassium citrate.
Quicksilver.
Quinine sulphate.
Radio apparatus and all accessories.
Rapeseed oil.
Reamers.
Reflector, searchlight.
Rice.
Rice flour.
Red oil.
Rolled oats.
Rope, manilla.
Rosin.
Rosin oil.
Rye.
Saddles.
Sago flour.
Sal ammoniac.
Saltpeter.
Samp, Indian corn.
Sawmill machinery (iron and steel).
Screw plates for cutting thread.
Screw machines.
Screw machines, automatic.
Searchlights.
Seamless tubes.
Searchlight and generators suitable for army and navy use.
Sensitized potash.
Sheet bars, steel.
Slabs, steel.
Sheep manure.
Ship stores.
Shoes, leather.
Shooks (if of wood specified in the proclamation of Aug. 27, 1917).
Syrup.
Sisal.
Silver nitrate.
Silver-plated ware.
Skins.
Soap.
Soap powder.
Sodium.
Sodium cyanide.
Sodium fluoride
Sodium hyposulphite.
Sodium bisulphite.
Sodium sulphite.
Solder.
Soot.
Soup paste.
Specular iron.
Spelter.
Spiegeleisen.
Spruce, wood.
Staves (if of wood specified in the proclamation of Aug. 27, 1917).
Steam boilers.
Steam boiler tubes.
Stearine.
Stearine acid.
Stearine-acid candles.
Steel shapes—
Beams, all sizes.
Channels, all sizes.
Angles, all sizes.
Tees and zees.
Steel, fabricated, structural, including beams, channels, angles, tees and zees and plates, fabricated and shipped knocked down.
Steel plates, including ship boiler, tank, and all other steel plates 1-8 of an inch thick and heavier and wider than 6 inches and circles over 6 inches in diameter. This included No. 11 U. S. gauge, but not No. 11 B.W. gauge.
Steel hardening materials.
Steel ingots—
Billets.
Blooms.
Slats.
Sheet bars.
Steel scrap.
Steel—
Tool.
High-speed.
Steel alloys.
Sugar.
Sugar of Milk.
Sulphate of copper.
Sulphate of soda.
Sulphur.
Sulphate of—
Ammonia.
Antimony.
Alumnia.
Barrium.
Iron.
Quinine.
Sulphide of antimony (stibnite).
Sulphurated castor oil.
Sulphuric acid and its salts.
Sulphuric acid.
Superphosphate.
Superheaters.
Tachometer.
Tallow.
Tallow candles.
Tamales.
Tank plates.
Taps and dies (machine).
Tetranitroaniline.
Tetranitromethylaniline.
Tees—
Iron.
Steel.
Telephone apparatus.
Tetranitroethylaniline.
Tin.
Tin, all articles containing.
Tin cans, except when used as containers.
Tin foil.
Tin plate, terne plate.
Toluol.
Toluol and its derivatives.
Trinitrotuluol.
Tools, machine.
Toluidine—
Orthotoluidine.
Paratoluidine.
Tool steel.
Toys (tin, brass, lead, etc.).
Tungsten.
Turbines.
Turpentine.
Turpentine, crude.
Turret holders.
Twine, binder.
Twist, drills.
Type, printing.
Tools—
Boiler.
Iron.
Steel.
Copper.
Vanadium.
Vaseline.
Vises (bench drill).
Vegetable oils.
Vitriol, blue.
Walnut, wood.
Welting.
Wheat, wheat flour.
White enamel book paper.
White lead (dry).
Wireless apparatus and accessories.
Wood—
Ash.
Spruce.
Walnut.
Mahogany.
Oak.
Birch.
Wood pulp.
Woodworking machinery, power-driven.
Wool.
Wool clippings.
Wool products.
Wool rags.
X-ray apparatus.
Zees—
Iron.
Steel.
Zinc.
Zinc oxide.
Zinc sulphate.
Zinc, white (dry).
Xylidine.
Xylol.

Shippers should note that every article of commerce is included in the list of articles mentioned in the first division of the President's proclamation of August 27th, and will therefore require licenses when shipped to Albania, Austria-Hungary, that portion of Belgium occupied by the military forces of Germany, Bulgaria, Denmark (her colonies, possessions, or protectorates), Germany (her colonies, possessions or protectorates), Greece, Leichtenstein, Luxemburg, the Kingdom of the Netherlands (in Europe), Norway, Spain (her colonies, possessions, or protectorates), Sweden, Switzerland, or Turkey (excluding any portion of the foregoing occupied by the military forces of the United States or the nations associated with the United States in the war) or any territory occupied by the military forces of Germany or her allies.

WATCH THESE RULINGS

Decisions of Interest to Importers Covering Questions Arising in the Importation of Various Articles

In Appraisers' Bulletin No. 1583, dated October 9th, 1917, the Commissioner of Customs has instructed Collectors of Customs of the following Board of Customs' decisions:—

Magic Baking Powder can or box wrappers or labels, as per samples submitted, declared to be dutiable under tariff item 178. According to this item the rate of duty payable is 15 cents per pound, with the addition of 7½% war tariff.

Cover lips, damper screw shells and swing catches or door catches, manufactured of tin, declared to be dutiable as chaplets under tariff item 451 (a). This item is worded as follows:

	General Tariff.
"Stove urns of metal, and dovetails, chaplets and hinge tubes of tin for use in the manufacture of stoves	10 p.c."

The above item is also subject to the war tariff of 7½%.

Dermax, a proprietary preparation in liquid form for preparing stencil paper, declared to be dutiable under tariff item 220. This item makes the rate of duty payable 60% ad valorem. The war tariff of 7½% also applies.

Anthracite coal briquettes, declared to be free of duty under tariff item 586.

Canned turtle meat, ruled to be subject to duty under tariff item 8. Under this item the rate of duty payable is 27½% ad valorem, plus the war tariff of 7½%.

Hard soap (not being whale oil soap or castile soap), when the fair market value thereof at the place of manufacture abroad is over ten and one-half (10½) cents per pound wholesale, shall be rated for duty under tariff item 228 as soap, n.o.p.

The Fuel Controller's Coal Regulations

Under the Provisions and Authority of the War Measures Act, Regulations as follows have been Enacted Covering the Importation, Distribution, Sale and Delivery of Coal

By C. A. MAGRATH
Fuel Controller of Canada

PURSUANT to the authority vested in him by paragraph (3) of the Order in Council of the 12th July, 1917 (P.C. 1887), the undersigned hereby makes the following regulations governing the price of coal and the importation, distribution, sale and delivery thereof.

INTERPRETATION:—

(1) In these regulations, so far as concern any particular transaction, unless the context otherwise requires:—

(*a*) "Operator" means a person who mines coal and sells the same.

(*b*) "Broker" means a person who buys and sells coal or arranges the transaction between buyer and seller, but in either event does not physically receive and handle the coal.

(*c*) "Wholesale dealer" means a person who physically handles and sells coal to a retail dealer.

(*d*) "Retail dealer" means a person who physically handles and sells coal to a consumer.

(*e*) "Importer" is a person who imports coal from without the Dominion of Canada.

(*f*) "Consumer" means a user of coal for domestic, industrial or any other purposes.

Importer's Permit.—(2) Any person engaged in the business of importing coal into Canada shall within twenty-one days after the date upon which these regulations come into force, mail to the Fuel Controller by registered letter an application for a permit in Form "A" in the schedule hereto and, if approved, an "Importer's Permit" in Form "B" hereof shall be issued. Such permit shall be prominently exposed in the permittee's office. No one shall commence the business of importing coal into Canada after the coming into force of these regulations without obtaining a permit in Form "B."

Dealer's Permit.—(3) Any person engaged in the business of selling coal as a broker, wholesaler or retailer, shall within twenty-one days after the date upon which these regulations come into force, send to the Fuel Controller by registered letter an application for a Permit in Form "C" hereof, and if approved, a "Dealer's Permit" in Form "D" hereof shall be issued. Such permit must be prominently exposed in the permittee's office. No one shall commence the business of selling coal as a broker, wholesaler or retailer after the coming into force of these regulations without obtaining a permit in Form "D."

(4) In case any importer, broker, wholesaler or retailer is found guilty of having given short weight, or in case there is other sufficient cause as to which the Fuel Controller shall be the sole judge, he may suspend or cancel any permit issued by him upon giving fourteen days' notice to the permittee by registered letter, and may renew the permit as he may in his discretion see fit.

Illegal Dealing in Coal.—(5) Any person who commences or continues to import or deal in coal without having made application for a permit as herein provided, or who has been notified by registered letter by the Fuel Controller that the said application has not been approved or that any permit issued to him by the Fuel Controller has been suspended or cancelled, shall on summary conviction be subject to a penalty not exceeding $100 for each such offence. A penalty not exceeding $50 for each day such business is conducted in contravention of these regulations may also be imposed.

Coal Prices at the Mine.—(6) Every operator in Canada, outside the portions of British Columbia and Alberta known as District No. 18, shall if and when required by the Fuel Controller, enter into an agreement with him in writing, fixing the maximum prices per ton he may charge for the output of his mine, and containing such other terms and conditions as may be agreed upon. If any operator fails to make an agreement satisfactory to the Fuel Controller as and when required, the Fuel Controller may himself by writing under his hand, fix the maximum prices to be charged by such operator and prescribe such further terms and conditions governing the disposal of the output of the mine as he may deem expedient. A copy of such writing shall be mailed by registered letter to the manager of the mine affected thereby, and thereupon the operator shall be under the same obligation to give effect to the same as if he had entered into an agreement with the Fuel Controller in the terms of such writing.

Broker's Charges.—(7) Subject to contracts existing at the date of these regulations, commissions or charges by brokers on coal shall not exceed the sum of thirty cents (30 cents) per net ton, and no more than one such charge shall be made in Canada in respect of any coal.

Wholesale Charges.—(8) Subject to contracts existing at the date of these regulations, all wholesale dealers shall be permitted to charge a profit or commission not to exceed the sum of thirty-five cents (35 cents) per net ton on any ton of coal over and above the average cost price to such wholesale dealers of the said coal and including a reasonable proportion of the cost of handling and a reasonable proportion of overhead expenses and fixed charges, and not more than one such charge of thirty-five cents per ton shall be made in Canada in respect of any coal, but on no coal shall there be allowed both a charge for brokerage in Canada and a wholesale charge unless under special circumstances and with the consent of the Fuel Controller.

Retail Charges.—(9) Subject to contracts existing at the date of these regulations, retail dealers shall be permitted to charge a profit not to exceed fifty cents (50 cents) per net ton on any coal over and above the average cost price to such retail dealers of the said coal, and including a reasonable proportion of the cost of handling and a reasonable proportion of the overhead expenses and fixed charges. On the sale of any quantity of coal less than one net ton, the same proportionate profit may be charged, except that on any quantity less than two hundred pounds a profit of five cents (5 cents) may be charged.

Fixing Cost Price.—(10) The maximum price at which any size and grade of coal may be sold by a wholesale dealer or a retail dealer during the period from the first day to the fifteenth day, both inclusive, of any month, shall be the average delivered cost price to such dealer of such size and grade of coal on hand on the first day of such month, plus a reasonable proportion of the cost of handling, plus a reasonable proportion of overhead expenses and fixed charges, plus

the profit not exceeding that mentioned in the preceding paragraphs. Similarly, from the sixteenth day to the last day, both inclusive, of any month, the maximum price shall be based upon the average cost of coal on hand on the sixteenth day of the month.

(11) These regulations shall not prevent any dealer or broker from selling any coal at a price less than the maximum at which he is permitted to sell under these regulations.

Restriction of Coal Supplies.—(12) (*a*) Subject to contracts existing at the date of these regulations, no broker or dealer shall, except as provided by clause 12 (*b*) hereof, sell or deliver to a consumer, and no consumer shall receive any quantity of coal which, added to the quantity of coal which such consumer may then have on hand, would constitute more than an estimated supply sufficient for such consumer's needs for a period of two months.

(*b*) This section shall not be in force from the 1st April to the 1st September inclusive in each year, and shall not apply to railways, munition plants, asylums, convalescent homes and hospitals, and nothing herein contained shall prevent any person from having on hand or procuring such supply of coal as will altogether not exceed three tons.

Consumer's Statement.—(13) Any broker or dealer selling coal to a consumer may require the consumer to sign a statement in the following terms:—

"I ....., hereby certify that the quantity of coal for which I now apply, added to the quantity which I have on hand at the present time, will not exceed the supply which I am permitted to have under paragraph (12) of the Fuel Regulations."

(14) The production by any broker or dealer of a statement signed by the consumer as set forth in paragraph (13) shall be prima facie evidence that no breach of paragraph (12) of these regulations has been made by such seller.

(15) No party to any contract for sale or deliveries of coal existing at the date of these regulations shall deliver more than the minimum amount of coal called for by such contract until he has met the reasonable requirements of others desiring to purchase coal from him, provided that this provision shall not apply to contracts for the supply of coal to railways, munition plants, asylums, convalescent homes and hospitals.

Requisitioning of Coal.—(16) When in the judgment of the Fuel Controller an emergency exists, he may requisition any quantity of coal in the possession of any consumer in excess of the supply permitted under paragraph (12) hereof, and may direct the disposal of such excessive supply of coal.

(17) Where a requisition is made pursuant to the provisions of paragraph (16) hereof, the Fuel Controller may authorize any local dealer to enter the premises of the consumer named therein and remove therefrom the required quantity of coal, and deliver the same to such person as he may direct. Such dealer shall be liable to pay to the owner of such coal the compensation due to him under paragraph (18) hereof and may charge the person to whom it is delivered such price per ton as will reimburse him the amount of such compensation plus actual cost of delivery and a profit not exceeding twenty-five cents per ton.

Compensation.—(18) The compensation to be paid the owner of any coal so requisitioned shall be the actual value of the said coal at retail at the time of such requisitioning or, at his option, the actual cost at the time of purchase plus seven per cent. interest to date of requisition.

(19) For his information and assistance in carrying out the provisions of paragraphs 16, 17 and 18 hereof, the Fuel Controller may require the Mayor, Warden, Reeve or Overseer of any municipality—

(*a*) To cause an immediate investigation to be made into any application for the requisitioning of coal;

(*b*) To submit to the Fuel Controller recommendations with regard to any matter connected therewith;

(*c*) To certify whether or not in his opinion an emergency justifying requisition of coal exists;

(*d*) To fix the value of any coal requisitioned in case the parties concerned cannot agree; and

(*e*) Generally, to act as local agent of the Fuel Controller for any such purposes.

Access to Records.—(20) The Fuel Controller or his duly authorized agent shall have access to all books, records, documents and papers of any kind whatsoever relating directly or indirectly to the business and affairs of any person producing or buying and selling or otherwise dealing in coal, or of any person importing coal, and all such persons shall supply the Fuel Controller or his agent with all information as and when required by the said Fuel Controller or his agent. Any person failing or declining for a period of thirty days to give any information demanded shall be guilty of an offence and subject to the penalty provided by paragraph (21) hereof.

Penalties.—(21) Any person contravening any of the provisions of these regulations or of any agreement entered into with the Fuel Controller, or failing to observe any directions of the Fuel Controller under paragraphs (6) or (16) hereof, or making a false statement in the form set out in paragraph (13) hereof, *knowing the same to be false*, shall be guilty of an offence and liable upon summary conviction to a fine not exceeding $500 for each offence.

(22) Where an information is laid against any dealer or broker for an offence under paragraphs (7), (8), (9) or (17), of these regulations, the onus shall be upon the defendant to establish that the prices charged by him did not exceed those authorized by these regulations.

(23) No information shall be laid against any dealer or broker without first submitting the facts to the Fuel Controller and obtaining his consent in writing.

(24) These regulations shall be in force and effect from and after the first day of November, 1917.

(Sgd.) C. A. MAGRATH,
Fuel Controller.

Dated at Ottawa, the 26th day of October, 1917.

FORM "A."

Application for Importer's Permit.

Date .....

To the Fuel Controller for Canada,
Ottawa.

SIR,—Under paragraph (2) of the Coal Regulations, dated 26th October, 1917, application is hereby made for a Permit to import coal into Canada.

The Permit should be made out in the name of

.....
(State name of Company or Firm in full.)

All communications from the Fuel Controller for Canada should be addressed to—

.....
(State name of Official.)

at this address—

.....
(State address.)

The coal which it is desired to import from time to time is for—

.....
(State whether for resale or consumption or for both.)

Name of Company or Firm .....

Name of Official or Partner .....

This application must be signed by an Official or Partner.

Some Intricacies of the Customs Tariff*

A Review of the Services that are Rendered Members of the Association by the Tariff Department in Dealing with Customs Difficulties

By J. R. K. BRISTOL

Manager, Tariff Department, Canadian Manufacturers Association

EACH of us comes almost daily in contact with the customs tariff from some viewpoint. And many of us would be able to handle our business better in one direction or another if we knew more of the workings of customs tariffs and regulations. I desire to refer briefly to a few of the outstanding features of customs tariffs; and perhaps, afterwards, Mr. Chairman, there may be a general discussion which will throw further light on matters I may overlook.

This great world war, without parallel in history, has caused all the great trading nations of the world to organize and concentrate production for the conduct of the war; with the result that usual trade control rules have broken down, and trade, both domestic and foreign, is now largely controlled by means of drastic embargoes.

But we are bound to get back to normal conditions sometime. I pray it may be soon. And in normal times, by means of customs tariffs the trade of any country may be controlled, directed and developed, as seems best according to the vision and power of its Government.

In the development of industrial Germany, customs tariffs were signally relied upon.

Tariffs in Germany.

How the German Government directed their minds to this subject is strikingly pictured in a paragraph of a report issued a few weeks ago by the Department of Commerce, Washington. This paragraph is entitled, "Tariff Specialization."

I would like to read it because it shows how scientifically, deliberately and effectually the Germans worked the tariff:—

Some of the European countries have complained of the sharp practices of the Germans in giving customs-tariff concessions to certain countries. These complaints have often been aimed at what is styled "specialization" in the customs tariff. Specialization means making the wording of a tariff item so particular in matters of description that the item, while general in phraseology, confers a benefit on only one foreign country. It is a simple way of using the letter rather than the spirit of a law to evade the responsibilities of "most-favored-nation" agreements with other countries. Thus, Germany may be bound by commercial treaties to give other countries the same concessions which it makes to any one particular country, and it may want to make a concession to one country without extending it to all the others. This is done by inserting a tariff item so worded that, in effect, it applies to only one country. Take the following classic example of specialization: Tariff item 103 of the tariff of the German Customs Union provides a duty of 8 marks per 100 kilos ($0.864 per 100 pounds), live weight, for cattle. Then there is a subitem that reads: "Large, dappled mountain cattle or brown cattle, reared at a spot at least 300 meters above sea level, and which have had at least one month's grazing each year at a spot at least 800 meters above sea level," may, according to certain other specifications, be imported at rates as low as 9 marks ($2.14) per head. A note, explaining further, under item 103 is as follows: "'Large, dappled mountain cattle' is to be understood as meaning the dappled breeds belonging to the short-headed variety. Brown cattle are those breeds which—belonging to the long-headed variety, especially to the races of Alpine cattle—have a silver gray to dark or very dark brown hide, with lead-colored muzzle bordered with very light brown, almost white; black hoofs and horn tips; and dark tail tuft."

Every country that has a "most-favored-nation" agreement with Germany is entitled to the benefit of that item in the tariff. Belgium, the Netherlands, England, and other countries might, before the war, enter into Germany all the cattle they wished under that tariff item—to the extent that they had cattle for shipment which they could certify and convince the German customs authorities were up to the specifications. Within its own limits, it was a general grant; no mention is made of preferring one country over another in that item. Naturally, the German authorities could do nothing more than shrug their shoulders when it was suggested by some foreign experts that the item referred to applied, and was intended to apply, exclusively to a neighboring mountain Republic.

Such tariff control necessitates more or less complicated tariffs. Free Trade theorists may find fault with such tariff provisions; but I would recall to your remembrance that in known history no young country has ever yet developed industrially without such aids. Even the Prussians found themselves unable to develop the German Empire industrially without those aids.

Our own tariff of Canada is by no means a simple one. In it there are over 1,000 separate tariff provisions; there is the British preferential tariff, the Intermediate tariff, the General tariff, and the special or dumping duty clause which is practically another tariff.

Under these respective provisions there are always a number of questions of interpretation before the Customs Department for consideration and decision. Because the tariff represents statutory provisions, and the Department of Customs is established for the purpose of administering these tariff provisions without bias in any direction, I can wholly sympathize with the attitude of any member of the Association who feels that, when he has laid any question before Ottawa and got a decision from the unbiased authorities in the Customs Department, the last word has been said and nothing further can be done. But it should be remembered that Ottawa must decide upon the case as presented. It may happen that some decisive point may be overlooked by the manufacturer in laying his case before the Customs authorities for decision. Without full information on that decisive point the importer's case may not be adequately stated, and the Customs Department's decision on the facts presented may be different from what it would be if no determining factor were overlooked in presenting the case to Ottawa. In this connection the Association is available to every member for consultation and whatever help may be rendered in every individual tariff trouble. The membership fee in the Association entitles each member to the best attention the Association can give him in these matters.

How the Association Assists.

There are other Customs subjects in which the Association desires to assist its members. In the matter of drawbacks of duty in connection with exports of manufactures produced in Canada from imported, duty-paid materials, it is provided in the Customs regulations that 99 per cent. of all such duties may be repaid. This drawback arrangement is designed to place Canadian manufacturers on a parity with manufacturers

* An address delivered before the Toronto Branch.

in other countries in competing in the world's markets for export trade. It is a principle which was adopted long ago by the United States, the United Kingdom, and all the other great trading nations which assess duty on materials used for home consumption. Every great trading nation recognizes that its manufacturers could not engage in export trade without such repayments of duty, and also that really no revenue is lost, because without such repayments there would be no importations of the materials, nor payments of duty, for manufacturing for export.

Information on Export Trade.

In the matter of export trade, the Association is also equipped to furnish its members with full information on the method of invoicing necessary when making shipments to other countries. It is also prepared to furnish its members with full information on the Customs tariff requirements of other countries in respect to any commodity which it may be proposed to export from Canada. The methods adopted by other countries for the collection of Customs revenue present interesting features. European countries, whether operating under a policy of free trade or so-called protection, collect their Customs revenues by means of specific duties—that is to say, so many cents per pound, per measure, or volume, etc. South American countries, as a rule, collect their Customs revenue by means of *ad valorem* duties assessed upon a fixed valuation applying to each line of goods imported. This valuation is fixed by direction of the legislators of the respective countries, and duty is collected on such value regardless of the invoice price, which may be higher or lower than the fixed valuation. On the other hand, the United States, Canada, Newfoundland, British South Africa, Australia and New Zealand collect Customs revenue largely by means of *ad valorem* duties. This system requires special statutory provisions to control the appraisement or valuation of importations for the assessment of the *ad valorem* duties, and the provisions of each such country in this respect practically correspond. For instance, it is the basic principle in the legislation of these countries that Customs duty shall apply on the fair market value of the goods in the market whence and at the time when shipment is made directly to the consuming country. This basis of appraisement is an administrative measure, designed to facilitate equable collection of Customs revenue. But under present conditions this basis of appraisement was the cause of great hardship and loss to importers generally owing to the abnormal delays in obtaining delivery of goods actually purchased and to the enormous advances in prices as quoted in trade journals, and as asked by manufacturers in other countries who had become filled up with orders which would occupy their whole output for many months to come, thus prices were quoted specially high rather with the view to discourage further business for the present. Yet, these quoted prices were the only guide available to the Customs for the determination of the fair value of the goods in the country of export at time of shipment. Even the trade papers in the United States were full of comments to the effect that these quoted prices represented fictitious market conditions, and did not reflect the prices which, for example, in the steel trade, were actually being received by the steel mills. This situation had finally determined the Government of Canada to amend the basis of valuation for duty by Order-in-Council under the War Measures Act. (Full explanation was given of this amendment, and also of a subsequent amendment dated October 4th, 1917. Description was also given in regard to the tabulation of statistics of Canada's foreign trade.)

In conclusion attention was directed to probable conditions which will face manufacturers after the close of the war.

'When the war is over and the heroes we are so proud of have returned from the battlefront our duties arising from this war as I see them will not be nearly finished. There will be great factories empty of war orders. There will be Aeroplanes, Ltd., The British Forgings, and hundreds of like plants which were built or enlarged for the purpose of turning out war supplies, and have been humming with industry.

Are these plants to be idle after the war?

If so, how can we carry out our duty to this country, our duty to the thousands upon thousands of returning soldiers. If these men are to have the opportunity to become contented, happy citizens, is it not clear that these great plants must not be permitted to lie idle. If this is to be accomplished I think important new measures will have to be adopted to ensure success in exports of manufactories.

KEEP THE FREIGHT MOVING.

Earnest Appeal to Shippers is Issued by the Director of Overseas Transport for Canada.

In a circular to Imperial Government shippers of war material and supplies, A. H. Harris, Director of Overseas Transport, makes a strong plea for the conservation and proper use of railway facilities:

"The volume of Imperial Government war material and supplies which the Canadian railways will be called upon to move to the Atlantic seaboard during the coming winter will tax their resources to the limit.

"If the demands of the Allied governments are to be met conservation of railway facilities is absolutely necessary.

"A careful analysis of Government Overseas traffic moved to the winter ports last season shows an underloading of 30 per cent. in cars containing such items as packing-house products, ammunition, explosives, shells, forgings, acetate of lime, carbide, etc.

"In all cases cars should be loaded to the full capacity authorized by the various railways, and traffic of a bulky nature to the full cubic capacity of car.

"Had this rule been observed last winter about one-third less cars, and fewer locomotives, would have been required, while seaboard terminal accommodation would have been relieved to that extent.

"The question is one of national importance, and I earnestly request every Imperial Government contractor to realize the seriousness of the situation. It is only by active co-operation with the railway companies that we can hope, with the facilities available, to successfully cope with the enormous tonnage which we shall be called upon to move during the winter season."

WOOD FOR AEROPLANES.

Former Chief Forester of British Columbia Gets Appointment Under Imperial Munitions Board.

H. R. MacMillan, formerly Chief Forester of British Columbia and Timber Trade Commissioner for Canada, has resigned his position as assistant manager of the Victoria Lumber and Manufacturing Company at Chemainus, B.C. At the request of the Imperial Munitions Board Mr. MacMillan has undertaken to locate the stands of British Columbia spruce adapted to aeroplane manufacture, and on this most important task he will be engaged for the remainder of the war.

CO-OPERATIVE BUYING FOR EMPLOYEES

Scheme Employed in the Factory of the Dodge Manufacturing Company Works Well.

An employees' co-operative club has been organized by the Dodge Manufacturing Company, Mishawaka, Ind. In joining this club, each member authorizes the paymaster to pay the club treasurer five dollars and to pay similar amounts each time the member draws goods amounting to more than the balance remaining to his credit in the club treasury. No deliveries are made; each member buys a basket of uniform kind and carries his goods home. Thus are eliminated two heavy overhead charges—credit and delivery. Baskets and orders are left in the morning and the goods are taken home at noon or night. There are no telephone orders; no interruptions during morning or afternoon. The work of filling orders is thus systematized to the last degree.

Articles are put in packages of certain size. Sugar is handled in five and twenty-five-pound units; whole hams are sold without cutting; bacon is sold in strips; oleomargarine in two-pound packages, etc.

According to W. L. Chandler, assistant treasurer, a big effort is made to give the men the full benefit of the power of the corporation which they have helped to build up, not only in price but in the quality of goods handled. Only articles of known worth are handled. Since the "commissary," as it is called, was first started, many tests have been conducted to determine upon the relative merits of different brands of foodstuffs, etc.

Many suggestions have been offered as to the brand of oleomargarine to be handled. Each man who expressed an opinion was sure he knew all about the merits of the brands. For a test three sample packages were bought; two first and one second grade. Each was cut into four samples making twelve samples of three brands. Brands were obliterated and samples numbered. A committee of thirty-six employees, representing all departments, was asked to examine the numbered samples and to vote for first, second and third choice. Many of them unconsciously voted against the brand they had so strongly favored. Some voted for the same brand under different numbers for first and third places. The summary of the vote showed a strong preference for the second grade samples. After being shown the result of the ballot, the committee finally agreed that any one of the samples was O. K.

Goods without brands are handled in the lines of oleomargarine, flour, etc., to save arguments, but experience shows that high-grade goods cause no complaints, poor grades do.

The corporation announced at the start that any profit made was to go to the Employees' Benefit Association, but that there was no intention of making the store do more than carry itself. Flour, for instance, is bought by the carload, while all of the grocers in Mishawaka, because of selling to an average of but 40 families, buy in small lots from jobbers, thus showing a chance for a handsome saving in buying, besides eliminating the wastes of retail sale and delivery.

This plan has been in operation but three months. It is impossible, in so short a time, to determine where the proposition will end, but some interesting things have developed. The local grocers and butchers refuse to patronize any jobber who sells to the commissary.

A large amount of sales of the commissary replace business formerly sent to the mail order houses which does not influence the sales of the local retailers. On the other hand, a part of this revenue could be retained by the local wholesale market. The extent of the expense of deliveries, small orders and long credits has been impressed upon the minds of all.

Following the introduction of the commissary, one grocer has abandoned deliveries and insists on cash. Others have gone to the cash basis. All have lowered prices on some commodities to a point as low as could be expected. In fact, some goods are handled without profit, while others carry enough to compensate for this fact. The "stop and shop" or "no delivery" plan in vogue in several cities has its advantages, but in a small city it may not be as successful as the "three price store" where a customer pays for the goods, and if he chooses may have them delivered for an extra charge and may be extended credit for a further increase in price.

As yet no well balanced effort on the part of the merchants has been made to untie the knot, but prices on articles (staples) such as are handled in the Dodge commissary, have come down in all the stores. Prices on other articles seem to have advanced accordingly.—*Manufacturers' News.*

WORDING OF A POLICY.

Written Part, Expressing Actual Risks, Over-rules Printed Part, Describing Exceptions.

In connection with a fire insurance suit recently heard in New York a decision was given that, as between the printed form of a fire insurance policy, containing exceptions from the risk, and the written part, designed to express the actual risks assumed, the latter controls, and whatever is embraced within the real meaning of the general words is a "special" provision, intended to satisfy the printed conditions as to exceptions from risk.

Where a policy of fire insurance by a printed clause excepts liability for loss to patterns, unless specifically assumed, and the typewritten part of the policy states a risk on all appurtenances, apparatus and supplies used in the insured's business, liability for a loss of patterns, which were models for castings to be formed for assembling printing presses in the usual course of the insured's business was "specifically assumed," the patterns being "appurtenances."

MERGER OF FRATERNAL SOCIETIES.

Proposal Made in Ontario to Bring the Societies Together and Place Under Government Control.

A move is being made in Ontario to form a general merger of the various fraternal and benevolent societies of the province, to issue new certificates to members at a definite value, and then, thus combined, to approach the Government and ask for control over the new organization, similar to the control exercised by the Board of Workmen's Compensation. This move is a result of recent actuarial examinations of several societies, disclosing the fact, which had been suspected by outsiders for a good many years, that they are insolvent. It is believed by the representatives of the societies who have studied the matter that the only solution of their problem is to effect an amalgamation of all the societies, procure actuarial reports putting a definite value on the certificates of all the members at the date of amalgamation, and then make united application to the Government for control.

It was arranged, at a recent meeting at Toronto, that another meeting should be convened to draw up a report, to be presented to all camps and lodges in the district for their consideration. Whatever happens, there are evidently some more tragedies ahead of old members of unsound fraternals who cannot possibly afford to pay the rates of the societies on an actuarial basis.

ALLOWANCE WILL BE MADE

Importers are Advised that Customs Department Will Appraise Steel, Coke and Metals on Fair Values Established by United States

Referring to the United States prices on steel, coke and metal, as set out in the October number of INDUSTRIAL CANADA. page 856, as stated there, any reduction in the fair market value of goods between the time of their purchase by the Canadian importer and their exportation to Canada may be allowed by the Customs in appraising the value for duty. The Customs Department takes such action in view of the provisions of subsection 5 of section 43 of the Customs Act. The prices proclaimed September 25, 1917, by the President of the United States, on pig iron, coke and certain varieties of steel have been followed by the fixing of prices on October 16th, 1917, on other lines of steel, and in accordance with these new fair values, as determined by the President of the United States, the Department of Customs, under date October 29th, 1917, has issued the following instructions to Collectors of Customs:—

Iron and steel products enumerated below when purchased by the importer before October 16th, 1917, and exported to Canada on or after that date, may, upon presentation to the Collector of Customs of the required documentary proof of purchase, as above, be appraised at the following values:—

Commodity.	Basis.	Price per gross ton.
Blooms and billets, 4 x 4 and larger	Pittsburg and Youngstown.	$47 50
Billets under 4 x 4	" "	51 00
Slabs	" "	50 00
Sheet bars	" "	51 00
Wire rods	Pittsburg	57 00
		Per 100 lbs.
Shell bars:		
3 inch to 5 inch	"	$3 25
Over 5 inch to 8 inch	"	3 50
Over 8 inch to 10 inch	"	3 75
Over 10 inch	"	4 00
Skelp:		
Grooved	"	2 90
Universal	"	3 15
Sheared	"	3 25

Such commodities purchased on and after October 16th shall be dutiable at not less than the invoice value to the purchaser in Canada.

FOREIGN TRADE OF CANADA

(Comparison 1915, 1916, 1917.)

IMPORTATIONS.

	Month of September.			Six Months Ending September.		
	1915	1916	1917	1915	1916	1917
Dutiable Goods	$22,279,886	$37,952,740	$43,651,770	$124,355,564	$216,584,807	$299,089,018
Free Goods	15,750,434	30,813,522	32,241,594	89,236,955	174,380,436	250,836,205
Total	$38,030,230	$68,766,262	$75,893,364	$213,592,519	$390,965,243	$549,925,223
Coin and Bullion	597,378	578,686	2,182,508	3,842,177	20,190,318	8,158,893
Grand Total	$38,627,698	$69,344,948	$78,075,872	$217,434,696	$411,155,561	$558,084,116
Duty Collected	7,904,995	11,942,791	12,581,720	44,421,033	70,102,854	88,280,620

EXPORTATIONS.

(Month of September.)

	1915		1916		1917	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$5,600,416	$365,113	$6,981,919	$13,509	$6,963,522	$84,760
The Fisheries	2,750,313	8,494	2,366,727	3,029	3,156,011	11,885
The Forest	6,527,625	296,757	5,475,740	9,315	5,223,549	5,726
Animals and their Produce	10,188,424	205,145	12,183,712	235,763	20,102,625	590,508
Agricultural Products	11,139,935	5,863,403	25,164,034	610,775	20,657,937	26,799
Manufactures	9,244,974	676,006	37,801,177	923,525	56,243,863	1,959,283
Miscellaneous	678,048	171,229	311,872	190,302	273,955	176,624
Total Merchandise	$46,129,735	$7,586,147	$90,285,181	$1,986,218	$112,621,462	$2,855,585
Coin and Bullion	75	144,207	.....	151,604	170	250,428
Grand Total Exports	$46,129,810	$7,730,354	$90,285,181	$2,137,822	$112,621,632	$3,106,013

EXPORTATIONS.

(Six Months Ending September, 1917.)

	1915		1916		1917	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$30,096,530	$6,803,003	$40,943,415	$123,798	$35,924,760	$196,864
The Fisheries	9,433,073	27,184	10,329,868	12,317	10,433,771	82,746
The Forest	28,572,001	301,214	31,253,551	202,274	28,335,896	37,483
Animals and their Produce	44,933,830	1,639,182	53,382,886	1,722,444	83,002,705	2,195,101
Agricultural Products	59,346,983	14,449,283	206,141,326	3,217,525	260,654,960	6,612,056
Manufactures	71,476,819	3,065,523	190,823,240	4,224,227	345,960,399	10,329,291
Miscellaneous	2,532,912	699,545	3,847,228	778,564	2,551,231	1,182,423
Total Merchandise	$246,392,148	$26,984,934	$536,721,514	$10,281,149	$766,863,722	$20,635,964
Coin and Bullion	75	68,721,510	1.157	190.700.031	227.935	1,970,199
Grand Total Exports	$246,392,223	$95,706,444	$536,722,671	$200,981,180	$767,091,657	$22,606,163

War Bonds, Old And New

Canadian Loans of Yesterday and To-Day, with All That They Mean to the Nation and to the Individual

By VICTOR ROSS

WITH Canada's fourth domestic war loan immediately in prospect, it is interesting to review the history of the three preceding issues. The first loan of $50,000,000 in ten-year, five per cent. at 97½, announced November 22, 1915, was undertaken with considerable trepidation. It was the first time in many years that an issue of Dominion bonds had been attempted in the home market; and the prevailing impression was that we could not keep our financial machinery in satisfactory operation unless we were assured of a more or less continual supply of capital from abroad. Consequently the payments on the loan were spread over five months. As the subscriptions exceeded $100,000,000, the loan was increased to that amount, and the additional $50,000,000 thus obtained were applied to finance British purchases of Canadian-made munitions.

Second and Third Loans.

The second loan, consisting of $100,000,000 in fifteen-year "fives," issued at 97½, came out in September 1916. This was covered in four payments, spread over a period of three months. A heavy over-subscription was again in evidence; and shortly after the lists closed the loan was quoted at a premium. It will be observed that the payments on the second loan ran contemporaneously with the crop financing operations in the fall of 1916; nevertheless, the two transactions were financed without apparent strain.

Three months after the final payment on the second war loan had been met, the fourth domestic issue was put out. It constituted the most ambitious financial operation that Canada had yet attempted. The issue consisted of $150,000,000 in twenty-year fives, offered to subscribers at 96; and the difficulty of finally disposing of the bonds was increased by the fact that the new loan appeared on the market before its predecessor had been thoroughly digested. Great efforts were made to push it to success, and a large over-subscription resulted. However, both the second and third loans moved to a discount shortly after closing the lists. Also monetary strain was noticeable as some of the instalments fell due. The yield to subscribers in case of the third loan was approximately 5.40 per cent., as against a yield of 5.29 in the second loan.

Old Bonds Made Convertible.

During the summer of 1917 both the second and third loans continued to sell in the market below issue price, while the first loan held its ground better because of its convertibility into subsequent domestic war loans of the Government. To improve the market position of the later issues, an order-in-council was promulgated making them convertible at issue price and interest into subsequent war issues, having a currency of twenty years or more, and this has sufficed to keep them at or near the net cost to subscribers.

It is recognized that the fourth loan will call for strong efforts by all of the parties and organizations working for its success. Naturally some of the investment corporations and some large capitalists are pretty well loaded up with the existing loan, and their capacity to participate in the new flotation may, therefore, be somewhat diminished. This would make it all the more necessary for the potential investors with moderate and small means to come forward satisfactorily. On this occasion, particularly, the success of the operation hangs on their active and loyal co-operation.

Keen desire to help win the war should prompt everyone to save wherever possible and hold the savings for investment in the war loan. This might conceivably be the last opportunity for Canadians to take up a home war loan, before news of decisive military successes begin to come in. If, during the winter, signs of surrender appear in Germany, or, if the German military power appears to be breaking down, Canadians who defer their participation, may miss the last chance of giving assistance while it is sorely needed. Also, if the military outlook is decidedly brighter, as seen from the Allies' point of view, perhaps subsequent war loans will not offer the same attractions in the way of yielding, etc. Truly it may be said that the present issue does not impose an undue strain on the patriotism of our investors. Ignoring all other considerations, the new loan should attract general and enthusiastic support on account of its features as an investment. The yield will be above 5½ per cent., and there are possibilities of making seven, eight, or nine per cent. on the money put into the bonds—providing the war does not last too long.

Bonds Will Rise in Value.

The experience of the Northern investors who loyally bought United States loans during the Civil war, indicates how the Canadian purchasers of our war loans may benefit. Shortly after the termination of the struggle the United States Government began to redeem its war debt rapidly. Under the influence of the redemptions and of the steady growth of the country in wealth and economic power, the quotations of the war bonds rose—giving holders opportunities of realizing at excellent profits. We may reasonably expect a similar rapid recovery in Canada's case—especially if the general expectations of continued high prices of our raw products are realized. With drastic taxation in force, and a large and growing production of staples saleable at high prices to Europe, our war debt should come down after peace returns; and it may not be long before the present absurdly low quotations for Dominion bonds are nothing but a memory which will not give pleasure to those who failed to take advantage of the opportunities, though able to do so.

TURN GARBAGE INTO FUEL.

Plant of 150 Tons a Day Capacity is Proposed for Regina, Sask., by the Canadian Nufuel Co.

Negotiations are being conducted between the Canadian Nufuel Co., of Regina, and the Regina City Commissioners for the manufacture of the new fuel called "Oakole" from that city's garbage and refuse. The patentee of this new fuel is Mr. Culver, an American chemist, and Dr. Armstrong, of Regina, has secured the selling and manufacturing rights for Canada and Newfoundland. At the present time this new fuel is being manufactured at San Antonio and Austin, Texas, and on Oct. 5th a large plant, having a capacity of 250 tons of fuel a day, was opened at Pueblo, Arizona. It is proposed to erect a plant having a capacity of 150 tons a day at Regina.

Shells Would Build Nineteen Quebec Bridges

Canada Has Shipped in Shells Sufficient Tonnage to Build Nineteen Bridges Across the St. Lawrence River*

By BRIGADIER-GENERAL SIR ALEXANDER BERTRAM

MANY of my fellow members can go back with me forty years, when in Canada there was practically no basic industry beyond that of agriculture. Its provisions were so many practical devices for warding off the ailments of our infant industries. There were far-seeing men in those early days who knew of the great natural resources of our broad Dominion and who visioned what has come to pass. Yet it was the holocaust of war which has really made Canadians know Canada. Through the fiery furnace of the great conflagration we have been brought to the actual realization that the visions of our forefathers were not the dreams of speculative optimists.

That we had more than a country of magnificent distances and that even our mountains and rock-bound coasts were mines of infinite wealth was admitted in a general way within the present decade. Practical men like you whom I see before me can realize the difficulties, or some part of them, which confronted the men who first tried to organize and convert our great metal deposits into an efficient machine for the supply of munitions to the British Empire and our allies.

Out of the chaos and crime of this awesome war Canada has learned that her natural resources are now actual and active, and that she has contributed the three great essentials of war—men, money and metals—in generous quantity and in superb quality. That we shall benefit from this development in years to come is what you must know and feel.

Output of Shells.

Let me preface the figures which I am about to give you. We have shipped in shells sufficient tonnage to build 19 bridges across the St. Lawrence, each bridge equal to the size of the Quebec Bridge. We talked a few years ago of contributing three battleships; our tonnage in shells shipped to the Empire would build 66 battleships of 18,000 tons each.

In this paper we deal only with munitions. What Canada has done and could do could be written in other chapters of industry. It is my purpose, however, to give a talk on the manufacture of munitions in Canada, and also to place before you a statement of the quantity of shells and the weight of materials in steel, copper, spelter and lead required to complete the orders given by the British Government.

The introduction of the refining of copper and spelter is a new industry in Canada. The Consolidated Mining & Smelting Company, of Trail, B.C., are producing 360 tons of copper, 1,700 tons of lead, and 1,200 tons of zinc per month. This taxed the capacity of all our steel producing and refining plants. There were also new plants organized for the manufacture of all kinds of explosives which will be enumerated.

Old and New Shipyards.

Concurrently with the carrying out of the production of munitions, the Imperial Munitions Board were given large contracts for the manufacture of ships of all sizes. Few men but those who live by the lake and sea know that huge contracts for ships are being carried to completion daily, and that every old shipyard and many new shipyards are working day and night. The component parts of ships are all made in Canada, with the one important exception, we have to import all the rolled plates for the steel ships. It only requires this one industry to balance up the component parts of shipbuilding. I am pleased to state that this is now under serious consideration.

The manufacture of aeroplanes was introduced about eight months ago, and to-day is an excellently developed organization, producing upwards of 100 aeroplanes per month. Plans are being put into operation to double this output immediately.

Production of Factories.

In addition to this, the Board have established plants for the manufacture of nitrocellulose powder, t.n.t., and cordite. The production of these factories are:—

Shell	Quantity.	Tons.
18 pr. shrapnel	27,931,714	189,556
18 pr. high explosive	5,300,908	71,559
4.5 in. high explosive	8,738,470	235,893
60 pr. high explosive	1,097,317	48,281
6 in. high explosive	2,959,626	233,310
8 in. high explosive	747,190	113,106
9.2 in. high explosive	744,179	168,155
	47,519,404	1,029,860

Cartridge Cases	Copper and Brass
18 pr. cartridge cases	30,188,904
4.5 in. cartridge cases	9,466,523
	39,655,427 or 20,768 tons

Shell Forgings Exported.	
18 pr. shrapnel forgings	447,112
4.5 in. h.e. forgings	3,574,214
6 h.e. forgings	899,711
	4,921,037 or 138,498 tons

Propellants and Explosives.
British Chemical Co. produce:
T.N.T. about 40,000 lbs. per day.
Nitrocellulose.
Powder, about 80,000 lbs. per day.

Manufacture of Explosives.

Approximately 46,000,000 lbs. of T.N.T. have been manufactured since the commencement of the war. The number of boxes required for all sizes of shells and explosives runs to about 25,000,000.

Cordite.—The production of the British Cordite Company will reach in the neighborhood of two million pounds per month.

Time Fuses.—This was also a new industry, and plants were organized for this purpose, and when operating at full force they produce 40,000 time fuses per day.

Acetone.—One plant was volunteered for this purpose and is to-day producing over 100 tons per month. It is a model of perfection.

Electric Steel.—When a year ago there appeared to be a shortage of steel, the Board established an electric steel plant for the purpose of utilizing the scrap material. This plant is almost completed, and to-day is producing steel for the British Government. They expect to reach approximately 4,500 tons per month.

The total value of all munitions and supplies purchased since the inception of the shell-making industry, from Sep-

* Paper read before Canadian Society of Civil Engineers, Montreal.

tember, 1914, to September, 1917, is approximately $700,000,000. The work carried on embraces no less than 400 factories and plants in the Dominion, three-fifths being directly associated in the production of shells, and two-fifths associated with the production of components, basic supplies, and shipbuilding.

The object, from the inception of the manufacture of these shells was to produce the finished article from the raw materials found in Canada's own mills and mines. This has been done. The shells have been made in Canada from fuse to cartridge case.

The Imperial Munitions Board has accomplished a great work in the present and has presaged a great future for the industries of Canada. When the history of their accomplishments may be written, when stories of how they have had to surmount adverse conditions may be told without reservation, then only will you know, as I know, what a magnificent and stupendous work has been carried out for the benefit of and for the future of the Dominion of Canada.

Mr. J. Duchastel, who presided, supplemented the paper by the following statement: A better appreciation of the volume of munitions supplied by Canada to the allies will be had when one realizes that if one ship a day were loaded with 3,000 tons it would take 373 ships, or one every day for a year and eight days, to carry the shells alone across the ocean.

This cargo would load 39,637 freight cars, which, if coupled end to end, would make a string of cars reaching from Montreal to Toronto and an additional line from Montreal to Ottawa.

The steel used in making shells if rolled into 90-lb. rails would build two transcontinental railways from Halifax to Vancouver.

If placed end to end the boxes in which the shells were shipped would make a single line from Victoria, B.C., to London, Eng., with sufficient left to be placed three abreast reaching from London to Berlin. These boxes, when piled solidly in St. Catherine Street, Montreal, would fill it from wall to wall to a height of 50 feet, a length of four miles, and if built solidly on Dominion Square, covering the entire portion of the square below Dorchester Street, would make a solid cube reaching to the height of 1,750 feet.

First Aid Kits Are Prescribed

Ontario Workmen's Compensation Board Tells What Must Be Contained in First Aid Equipment

THE importance of antiseptic treatment of even slight wounds and of other first aid in cases of emergency is now generally recognized. The many thousands of dollars' compensation that the board's statistics show might be saved by preventing blood-poisoning and other serious consequences is only a part of the benefit of a "First Aid" service. Very many employers already have such a service. It is only fair that it should be required to be provided in all cases warranting it.

Accordingly, pursuant to sub-section 10 of section 44a of The Workmen's Compensation Act, the Workmen's Compensation Board has made the following regulation, duly approved by the Lieutenant-Governor-in-Council, August 14th, 1917:

88.—(1) Every employer having more than fifteen and less than 300 workmen usually employed shall provide and maintain in his factory or place of employment, or in each factory or place of employment if he has more than one, a first aid kit or box containing the following supplies, with such additional quantities as may be reasonably necessary to provide first aid to his injured workmen, and shall have the same in charge of some suitable person:

Minimum First Aid Kit.

A Standard First Aid Manual.

Instruments:
- 1 pair scissors.
- 1 pair tweezers.
- 2 eye droppers.
- 1 camel's hair brush.
- 2 doz. safety pins, assorted.
- 1 tourniquet.
- 1 graduated medicine glass.
- 1 porcelain or white enamel wash basin.

Drugs:
- 2 oz. 4% boracic acid, for eye wash.
- 2 oz. aromatic spirits of ammonia.
- 1 (2 oz.) bottle of boracic tablets.
- 2 oz. alcoholic iodine, half strength (for external use).
- 1 tube vaseline.
- 4 oz. olive oil (for dressings for burns or eye injuries).
- 2 oz. pure benzine for cleaning wounds.
- 1 recognized antiseptic for washing wounds, e.g.,
  - 2 oz. Cresol.
  - 2 oz. Eusol (Dakin's sol.) powder form, or tablet form-100.
- Burn dressing, e.g., bicarbonate of soda mixed with vaseline (3%).

Each of the above must be in bottles or containers, plainly labelled and the specific purpose for which the contents are to be used marked thereon.

Dressings:
- 6—1 oz. packages absorbent cotton.
- 3—1 yd. packages sterile gauze.
- 12 sterile gauze bandages, assorted sizes.
- 3 triangular bandages.
- 1 roll (½ in. x 5 yds.) adhesive plaster.
- Splints of assorted sizes.

(2) Every employer having 300 or more workmen usually employed shall provide and maintain, as convenient as possible to his factory or plant, an emergency first aid room, which shall be painted white and kept absolutely sanitary at all times. This shall be in charge of a clerk, workman, nurse or other person who has taken a recognized course of study in "First Aid to the Injured," and shall be provided with the following equipment and supplies in such quantities as may be reasonably necessary to provide first aid to injured workmen:

First Aid Room Equipment.

A Standard First Aid Manual.

Furnishings:
- Hot and cold water.
- 1 porcelain or white enamel wash basin.
- 1 emergency operating table.
- 1 sterilizer.
- 1 cabinet for surgical dressings.
- 1 porcelain or white enamel foot bath.
- 1 enamelled refuse pail.
- 1 metal box, fitted with emergency dressings to be used by first aid man when required to attend injured men in factory who cannot be immediately removed to first aid room.
- 1 couch.
- 1 carrying stretcher.

Instruments:
- Scissors.
- Dressing forceps.

Eye droppers.
Camel's hair brushes.
Safety pins, assorted.
Tourniquet.
Graduated medicine glass.

Drugs:

Boracic acid for eye wash (4%).
Aromatic spirits of ammonia.
Boracic tablets.
Alcoholic iodine, half strength (for external use).
Vaseline.
Olive oil (for dressings for burns or eye injuries).
Pure benzine for cleaning wounds.
Recognized antiseptic for washing wounds, e.g.,
Bi-chloride of mercury.
Cresol.
Eusol (Dakin's sol.) powder or tablet form.
Burn dressing, e.g., bicarbonate of soda mixed with vaseline (3%).
The above must be in bottles or containers plainly labelled and the specific purpose for which the contents are to be used marked thereon.

Dressings:

Absorbent cotton.
Sterile gauze.
Sterile gauze bandages, assorted sizes.
Cotton bandages, assorted sizes.
Triangular bandages.
Adhesive plaster.
Splints, assorted sizes.

(3) The employer shall keep posted up throughout the works in every factory or place of employment where more than fifteen workmen are usually employed the following notice, and where non-English-speaking workmen are employed such notice shall be posted in their different languages:

NOTICE

It Is Dangerous to Neglect Injuries

Without proper care, blood-poisoning or infection with serious consequences may result from slight injuries such as cuts, punctures, scratches, slivers, burns, etc.

Workmen are urged to see that proper attention is given to all such injuries, and to report immediately to the office of First Aid Officer.

.....
Manager.

Posted by authority of the Workmen's Compensation Board.

(4) A minimum First Aid Kit, as above described, or a first aid equipment satisfactory to the Workmen's Compensation Board, shall accompany the crew in charge of every railway train in transit, and every vessel.

(5) The board, where it deems the circumstances justify it, may direct or approve any addition to or reduction or variation in the first aid service or appliances above prescribed, or may, in any case not above provided for, prescribe such first aid service and appliances as it deems warranted.

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE INQUIRIES.

948. **School Supplies.**—A Saskatchewan firm of wholesalers would like to get in touch with manufacturers of school slates, crayons, chalk and other school supplies, who are not already represented in the West.

949. **Wood Stave Pipe.**—An Ottawa house dealing in contractors' supplies, etc., would like to hear from any manufacturers of wood stave pipe in Eastern Canada.

950. **Steel Wool.**—A Toronto firm is interested in locating Canadian supplies of this material.

951. **Buckle Tongues.**—An Eastern manufacturer of novelties desires to hear from Canadian manufacturers who are in a position to supply buckle tongues suitable for hair ornaments, etc. Samples will be furnished on request.

952. **Warehousing.**—An owner of a down-town property in Toronto is interested in getting in touch with manufacturers who require a distributing point. He is prepared to invest some money in a good business and will, if desirable, take charge or partial charge of the business, as well as renting the space.

953. **Warehousing.**—A prominent business man in Vancouver has an advantageously situated warehouse there, and commands the services of reliable and energetic warehousemen. He is interested in getting in touch with Eastern manufacturers whose goods are not yet established on the Pacific coast, and stands ready to put some money into the warehouse business.

954. **Representative.**—A man with considerable commercial experience in the Eastern provinces, who speaks both English and French, is open to represent manufacturers in the Maritime Provinces.

IMPORT TRADE INQUIRIES.

955. **Tropical Woods.**—We have been supplied with numerous samples of different kinds of tropical woods, suitable for the manufacture of furniture and for general construction. We shall be glad to show these woods to anyone interested and put them in touch with the party who will be able to supply these woods.

EXPORT TRADE INQUIRIES.

956. **Hosiery and Piece Goods.**—A firm of manufacturers' agents in Sydney, Australia, who state they are ready to send bank and other references, are open to represent Canadian manufacturers of such commodities as hosiery, underwear and cotton piece goods. Payments will be made through the banks direct to manufacturers or on release of shippers' bills of lading.

957. **Cotton Goods.**—A firm in Suva desires to obtain samples of prints, 26 inches to 32 inches wide, and cheap cotton singlets for the native trade.

958. **Cutlery.**—A firm in Suva desires to obtain cheap trade lines of table knives and forks.

959. **Canned Fruits.**—A firm in Suva desires samples and price lists of jams and canned fruit.

960. **Agencies.**—A British Consul, who has been given permission to trade, and is stationed at an inland point in Venezuela, which has the advantage of receiving shipments on through bills of lading via Trinidad, would like to hear from Canadian manufacturers who have goods to offer suitable for that market.

961. **Agency.**—A gentleman in Caracas, Venezuela, is interested in developing trade between Canada and Venezuela, and would like to hear from Canadian manufacturers who wish to export their products.

962. **Rubber Goods.**—A firm of manufacturers' agents and general merchants in Manchester are interested in getting supplies of rubber boots and shoes and rubber gloves from Canadian manufacturers, and would be glad to exchange information with anyone interested.

963. **Agencies.**—A well-established English firm in Buenos Aires is desirous of handling products of Canadian manufacturers in the Argentine Republic. They are interested partially in hardware, kitchen utensils, etc., but have an organization capable of handling other lines.

964. **Picture Moulding.**—A well-known firm of manufacturers' agents and importers in Australia are desirous of representing a Canadian manufacturer of this product.

965. **Export Trade.**—A very large and progressive firm, with offices and warehouses in South America and many other parts of the world, have recently established an office in Montreal which will devote its time and attention to developing export trade for Canadian manufacturers. We shall be glad to supply the name and address to manufacturers interested.

966. **Bicycle Pumps and Axles.**—A New York export house, enquiring for South African clients, would like to hear from Canadian manufacturers of the above-mentioned articles, the axles to be in English threads and sizes and interchangeable with English cycle fittings.

967. **Birch Plywood.**—A Dutch firm desires to get in communication with Canadian manufacturers of Birch Plywood, a sample of which can be furnished from this office.

968. **Agency.**—A manufacturers' agent in Australia desires to get in touch with Canadian manufacturers who are prepared to give representation in such lines as hardware, wearing apparel or foodstuffs.

EXPORT TRADE INQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE.

969. **Macaroni.**—A number of British firms who are large importers of macaroni, wish to get into communication with Canadian producers of macaroni with a view to buying supplies.

970. **Roofing Felts and Builders' Materials.**—A Liverpool firm wishes to receive prices and samples of roofing felts for present or after-the-war business. They also wish to hear from exporters of any line of builders' materials.

971. **Metallic.**—A Genoese house interested in cobalt and stellite high-grade steel, and importers of same, is prepared to buy metallic cobalt and stellite.

972. An English house at Buenos Aires, having connections with English railways and Government buying departments, wishes to represent Canadian manufacturers of the following lines: Lumber, heavy chemicals, iron sheets, iron and steel, wires, railway material and railway supplies.

973. **Agencies.**—A Durban firm of engineers, with branches in each centre of South Africa, is prepared to take up the representation for Canadian manufacturers of railway and signalling apparatus, shovels, mechanical machinery, electrical machinery, machinery specialties, steam and water packing, asbestos slates and coal tar.

974. **Tool Handles.**—A Glasgow firm, who have a license for importation, asks for quotations on ash and hickory handles for rakes, hay forks, hoes, and miners' and engineers' tools. With a view to after-the-war business, they also wish to get in touch with exporters of broom handles.

975. **Macaroni.**—A Glasgow firm asks quotations, c.i.f. Glasgow, on macaroni in one and two-ton lots.

INDUSTRIAL ACTIVITIES IN MONTREAL.

Shipbuilding is Developing into an Important Industry and Wooden Vessels are Being Built.

The Montreal Locomotive Works, Dominion Express Building, will make a $23,000 addition to their running shop.

Keels are ready to be laid for two 2,500-ton wooden ships in the Lachine Canal by Fraser, Brace and Company, and it is expected that about 600 men will be employed in the construction of the ships. Two more of similar size will follow.

The Foundation Company, Limited, have already laid down three keels at their Victoria yards for wooden steamers, under contract for the Imperial Munitions Board, and considerable headway is being made. The firm have their programme further advanced than any of the other shipbuilding companies with regard to wooden steamers.

It is reported that the Wallace Sandstone Quarries, Ltd., is to be financially reorganized, and a meeting of the bondholders is called for Nov. 12, in Montreal. Some weeks ago the company defaulted on its half-yearly bond interest due June 1, and a proposition is now to be made to the bondholders to release their prior claims and accept an equal amount of 7 per cent. cumulative preferred stock. The bonds, which are of the thirty-year 6 per cent. sinking fund class, were issued in 1912 to the amount of $800,000 out of a total authorized amount of $1,000,000. The company owns quarries of building stone in Nova Scotia and Manitoba, but the slackness in the building trade caused by war conditions seriously interfered with their profitable operation.

LUMBERING NEAR EDMONTON.

Twenty-five Million Feet of Northern Alberta Spruce Lumber was Sawn During the Summer.

The Northwest Lumber Co. recently closed down its mills on the St. Albert trail after a successful summer's operations, and arrangements are now under way in preparation for the next season's run. About 25,000,000 feet of Northern Alberta spruce lumber was sawn during the summer, most of the output going to the prairie trade south and east of Edmonton. Logging crews have been at work on this company's timber berths through the summer along the Alberta and Great Waterways Railway, and also in the vicinity of Lesser Slave Lake, on the Dunvegan Railway. It is expected that a total cut of nearly 40,000,000 feet will be got out for the next season's milling. These logs will begin to move toward Edmonton as soon as the mill is ready for operations again, and a steady flow of raw material will be kept up through the winter. In the meantime the machinery is being overhauled, and the whole plant is being put in shape for the record cut that is anticipated next year.

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufacturers. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements.

*** Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.**

ALBERTA.

Lethbridge.

It is stated that the erection of a large flour mill here is under consideration by several citizens.

BRITISH COLUMBIA.

Anyox.

Work will be started on a coke oven plant costing $1,500,000 for the Granby Consolidated Mining, Smelting & Power Co., 718 Granville St., Vancouver. General Manager, F. M. Sylvester.

Kamloops.

The Brandram-Henderson Paint Company are about to establish a white lead plant at Kamloops, B.C.

Kelowna.

The Kelowna Packing House have made extensive alterations and additions in order to take care of this season's fruit crop. The B. C. Growers, Limited, have constructed a large storage warehouse 96 x 150 feet. The packing house of the Kelowna Growers' Exchange has taken over the old cannery and have installed grading machines. Geo. Rowcliffe has made considerable additions to his packing accommodation. Occidental Fruit Company are operating a cannery at Okanagan this season. The Orchard City Evaporator has also largely increased its facilities.

Nanaimo.

The Ladysmith Smelter, near Nanaimo, B. C., is shortly to be enlarged and improved. In the past the copper matte has been shipped to Tacoma, Wash., for refining, but the company operating the smelter have now decided to install converters on their own property. In addition they are planning to greatly increase the plant's capacity. These improvements will cost about $2,000,000, and will, it is said, be started almost immediately.

New Westminster.

The Schaake Machine Works, Limited, New Westminster, are moving shortly to a site they have leased on Industrial Island and have let contracts for the erection of a machine shop, equipped with the latest machinery for the production and repairing of saw-mill, shingle-mill and cannery machinery, in addition to handling special work in connection with shipbuilding supplies.

North Vancouver.

The Wallace Shipyards, Limited, of North Vancouver, are erecting a large foundry building on Industrial Island, False Creek. The main foundry will measure 73 x 200 feet, and there will, in addition, be pattern shops, brass foundry and office buildings. The foundry building will contain three large casting-pits for special marine work. Coke ovens will be installed and up-to-date equipment is provided for the handling of coke and pig-iron on the loading platform. The new plant will be used in connection with contracts received by the firm for the construction of marine engines.

Vancouver.

The Ayres Varnish and Paint Company will erect a new paint factory at the corner of Raymur Avenue and Parker Street. The new structure will be of mill construction, two stories high, and will cost in the neighborhood of $2,000.

The Pacific White Lead Company of Montreal will establish a lead and paint industry on Industrial Island. Some $50,000 will be spent on the construction of buildings.

Coughlan & Sons report rapid progress in construction of the six 8,800 ton steel steamers which they are building for the British Government. It is expected that the first will be launched at the end of November. All these vessels will be given war titles, the names "War Camp," "War Charger," "War Chariot," "War Chief," "War Noble," having been allocated to five of the vessels.

Sabulite, Ltd., who formerly operated an explosive factory at Coquitlam, B.C., are shortly to operate a plant on False Creek, Vancouver, for the manufacture of desiccated vegetables.

T. Watt, 225 Fifth West, Vancouver, has installed a heavy galvanizing plant using the hot process and is turning out a general line of forgings for ships' chandlery and pole line hardware, both in black and galvanized.

NEW BRUNSWICK.

Moncton.

Humphreys Glass, Ltd., has purchased a site on Main St. for the erection of a glass plant which is being removed from Trenton, N.S.

The Atlantic Underwear Company are making an extension to their factory to cost $12,000.

NOVA SCOTIA.

Dartmouth.

The Liquid Air Co., 1 Ernest St., Montreal, have purchased a site on which they will erect an acetylene plant.

Sydney.

A permit has been granted to the Sydney Foundry and Machine Company to erect a two-story steel addition to their foundry.

MANITOBA.

St. Boniface.

General contract has been awarded in connection with the erection of a $10,000 reinforced concrete and brick factory for the Prest-O-Lite Company, 579 Portage Avenue, Winnipeg.

ONTARIO.

Amherstburg.

Work on the construction of the new Brunner-Mond of Canada, Limited, plant, near here, is being rushed to completion with all possible despatch. This company is a branch of the Solvay Process Co., of Detroit. When this plant is completed, it will be one of the largest single industries in Western Ontario.

Arnprior.

Tenders are being received for the erection of a one-story concrete and brick factory for the Arnprior Cabinet Co., Limited.

Aylmer.

E. Millard contemplates erection of a vulcanizing plant.

Brantford.

Fire damaged the plant of the Kitchen Overall Co. on Queen Street to the extent of $15,000.

Bridgeburg.

The large shipbuilding plant on the Niagara River three miles below Bridgeburg, which has been closed for several years, will be opened at once for the construction of all-steel ships of Welland Canal size. The Canadian Allis-Chalmers

Co., the holding concern of the Canada Foundry Co., which has owned the plant for ten years, will go into the shipbuilding business. Some additional shipbuilding machinery will be needed.

Brockville.

The purchase of the Delaney Iron and Forgings Company, of Buffalo, by the Canada Foundries and Forgings Company has been ratified at a special meeting of the shareholders of the latter company, held at Brockville, Ont. The transaction will materially strengthen the Canadian organization in its programme of extension into shipbuilding activities at its Welland properties, as the Delaney plant has been a successful producer of ship forgings for many years. The transfer of the ownership of the Buffalo plant will be effective as of date July 1st last, according to the terms of the option given to the Canada Forgings interests some months ago. Profits which have accrued from the Buffalo plant since that date, owing to the activity in shipbuilding, have been substantial, and will reduce the net cost of the Canadian company's purchase, viewing it from the conclusion of the transaction.

Campbellford.

Fire damaged the mill of the Northumberland Paper and Electric Company.

Cobourg.

General contract has been awarded for the erection of a two-story brick addition to the dyeing plant of the Cobourg Dyeing Co., Limited.

Dundas.

Contracts have been awarded in connection with the erection of a $200,000 factory and office building for Pratt & Whitney.

Elmira.

Contracts have been let in connection with the $6,000 factory to be erected for the Great West Felt Co., Limited.

Fergus.

A movement is on foot by the local Board of Trade to have the Monkland mill, owned by James Wilson & Sons, and recently destroyed by fire, rebuilt.

Georgetown.

H. Corke & Company, Yarn Spinners, of Georgetown, Ontario, are building an addition to their mill which will double their present capacity. They are putting in a new Johnson & Bassett mill, with a new 60-inch carder, which will give them two sets of cards and four mills. This firm have only been operating in Georgetown about two years, and are showing splendid progress.

Gravenhurst.

The National Potash Corporation, Limited, with E. L. Wettlaufer, of Wettlaufer Brothers, Toronto, as president, has been incorporated to manufacture and produce potash in Canada from feldspar in the vicinity of Muskoka Lakes, where it is found in large quantities. The company has acquired the plant of the Gravenhurst Crushed Granite Co.

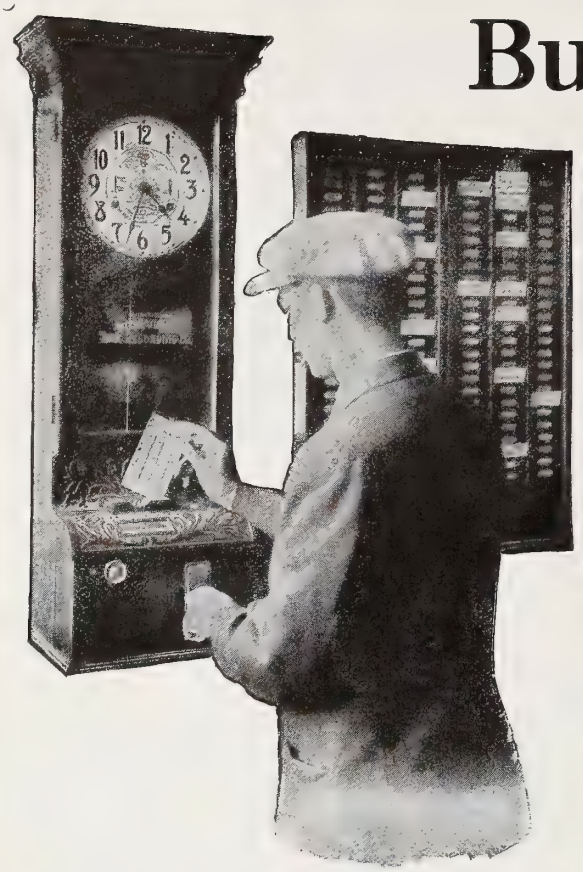
Hamilton.

A new company, to be known as "J. B. Nicholson, Limited," has been incorporated. The authorized capital is $40,000, head office is in Hamilton, and provisional directors, ex-Alderman William Nicholson, John H. Clappison, of the Hamilton Engine Packing Company, and J. B. Nicholson, B.A.Sc., A.M. Can. Soc. C.E. The nature of the business to be carried on by the new firm is to be general engineering construction, a specialty being made of building a new design of large reinforced concrete tanks.

JOHNS-MANVILLE
Asbestos
Resistant to heat, water, wear and weather
JOHNS-MANVILLE SERVICE COVERS THE CONTINENT
Insulations Packings Steam Traps
Roofings and Building Materials
Electrical Products Household Specialties
THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.
Toronto Montreal Vancouver Winnipeg
When you think of Asbestos you think of Johns-Manville

CALGARY REPRESENTATIVE
With permanent office seeks connection with Eastern Manufacturers desiring representation in Alberta. Straight commission basis preferred. Only well-established firms will be considered
RODERICK MACLEOD, Grain Exchange Bldg., CALGARY

Electro
GALVANIZING
Work handled promptly and at reasonable prices.
Send samples and specifications.
Guaranteed to stand Government Test.
THE PEDLAR PEOPLE
Established 1861 Limited
Executive Offices and Factories:
OSHAWA, ONT.
Branches:
Montreal, Ottawa, Toronto, London, Winnipeg
Vancouver



Buy at Home!

It pays to do so—we save you 25 per cent. to 42 per cent. duty on imported goods.

Never perhaps in the history of our country has the slogan "Buy at Home" meant so much as it does to-day. In order to keep Canada a creditor nation—help to keep your money at home.

International Time Recorders

are made in Canada, with Canadian capital, by Canadian workmen and, as far as possible, from exclusively Canadian materials.

Quality considered, our product is the lowest priced in the world.

International Master Clocks
International Time Recorders
International Cost Recorders
International Program Devices
International Secondary Clocks
International Time Stamps

Internationals are the only devices of their kind made in Canada.

SERVICE : With our factory in Toronto, and branches in the larger centres, we can naturally offer a service second to none. Buy Internationals, made in Canada, and save money, save time, avoid labor disputes and freight delays. Buy an International Time Recorder anyhow, and protect your payroll by securing **the original payroll entry printed,** and **printed by the employee himself.**

Let us send you our latest folders—new and very interesting.

The International Time Recording Co. of Canada, Limited

270 Dundas St., TORONTO—FRANK MUTTON, General Manager

WINNIPEG
247 McDermott Ave.

VANCOUVER

MONTREAL : Cartier Bldg.
Cor. McGill and Notre Dame Sts.



Where do my profits come from?

He wants to know why his profits are not bigger, but he knows he must find out where they **come from** first.

Let's tell him.

From his office force? No. From his salesmen? No. From his advertising? No. From his board of directors? No. From speculation in raw material? No.

These are all big aids, but they are not the real simon-pure, day-in-day-out source of PROFITS.

What then?

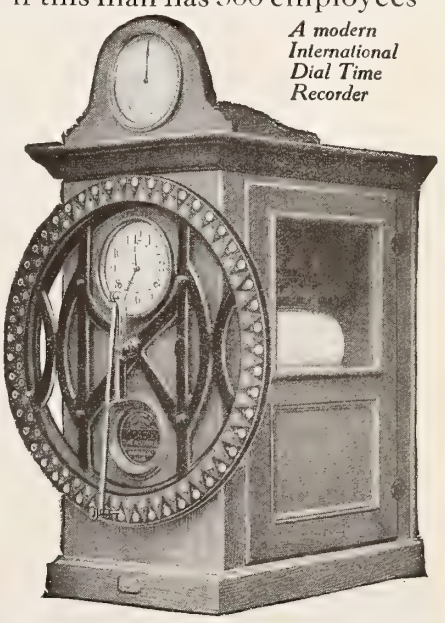
The working time of his employees. The time he buys and pays for and which is spent in transforming raw material into finished product—and the better the use of the time, broadly speaking, the bigger the output and the bigger the profit the goods will yield.

All right—how about leaks and losses in working time? Well if this man has 500 employees there are at least 12,000 possible leaks a week—one each for the 4 daily arrivals and departures per employee. That is, unless he uses an International Time Recorder as many thousands of successful firms do.

There's a cold-blooded, non-human machine that prints in unchangeable, deadly, accurate figures the time record of every employee **as made by himself.**

An International checks working time, which means safe-guarding profits.

Full information gladly sent on request.



A modern International Dial Time Recorder

The International Time Recording Co. of Canada, Limited

270 Dundas St., TORONTO—FRANK MUTTON
General Manager

VANCOUVER

WINNIPEG
247 McDermott Ave.

MONTREAL : Cartier Bldg.
Cor. McGill and Notre Dame Sts.

Building permit issued to the Procter-Gamble Company for the erection of an office building on Burlington Street, to cost $5,000.

Contracts have been awarded in connection with the $125,000 addition to the factory of the American Can Co.

The Canada Screw Company will build a $100,000 addition to their factory.

Hastings.

The plant of the Hastings Tanning Company was completely destroyed by fire. Loss, $200,000. The Breithaupt Co., of Kitchener, controls the company.

Kitchener.

The W. E. Wielfle Shoe Co., Limited, 127 Wilmot Street, will make a $15,000 addition to their factory.

Messrs. C. E. & W. C. Cowan have bought out the plant at Kitchener formerly known as the Macklin Knitting Works, and will operate it under the above firm name on a much enlarged scale.

Leamington.

An $800,000 sugar plant may be erected here. A by-law in this connection will be submitted to the ratepayers in November.

Listowel.

The Perfect Knit Mills have decided to add a dyeing plant to their new factory.

London.

The Battle Creek Toasted Corn Flake Co., Ltd., will erect a $50,000 plant here. This amount will include buildings, storage tanks and machinery. The additional buildings will be of brick and concrete, a three-story building of 50 x 60 feet and a one-story building of larger dimensions. Six large fire-proof storage tanks will be erected.

Mitchell.

A. Burritt & Company, Mitchell, Ontario, have just completed the construction of a most modern knitting mill, for the manufacture of a full line of gloves, hosiery and underwear. The building is a three-story, slow-burning mill construction, 60 x 163 feet, and is equipped with all the modern appliances necessary for the successful operation of a textile mill.

Ottawa.

J. H. Connor & Son, Ltd., 22 Lloyd St., have started work on alterations costing $4,000 to their factory.

Owen Sound.

Messrs. Green & Woolrich have completed the construction of the dock at the Malleable Iron plant. The dock, without its approaches, is ninety by one hundred and fifty feet. The approach is fifteen by two hundred feet.

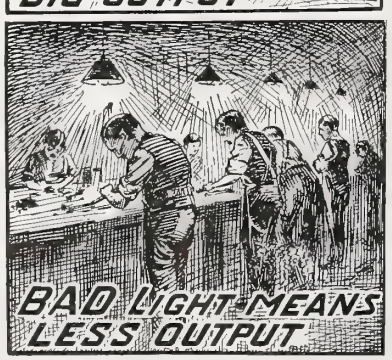
Pembroke.

Representatives of the Waterous Engine Co., of Brantford, have been in Pembroke lately, preparing plans for the enlargement of the Petawawa Lumber Co.'s mill, which will be used temporarily by the Colonial Lumber Co., or until such time as conditions are favorable for the erection of a large new mill by that company.

Perth.

In connection with the erection of a $50,000 soap factory for Henry K. Wampole & Co., Herriott St., boilers, engine and generator are required. Address, Stewart & Adams, care of company.





T H-E

Hydro High-Quality Lamps Help Keep Your Production Costs Down

Labor may be high-priced and hard to satisfy, but you will find good light a wonderful help in keeping your plant or warehouse running smoothly.

Hydro high-quality lamps are gloom-chasers and expense-killers. When their long life of 100% usefulness is over they quit—*but they won't waste current.* Stock up now while the supply is good.

Toronto Hydro Shop

New Address—282 Yonge Phone Adel. 2120
Branch—Gerrard and Carlaw Phone Ger. 761

STRUCTURAL STEEL WORK OF EVERY DESCRIPTION.

BUILDINGS BRIDGES PENSTOCKS ROOF TRUSSES COLUMNS, ETC.



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Old Tyme Pure Maple Syrup
AND
Maple Butter
SOLD EVERYWHERE

Maples Limited
Manufacturers and Refiners
TORONTO CANADA

Peterborough.

Work is progressing on the new plant of the Quaker Oats Co. The 18 new silo tanks for storing grain are about complete, also the concrete structure south of the tanks, which is the elevator proper. On top of the entire structure will be placed a huge water tank that will extend as high as the present wooden tower for elevating concrete. This will supply water for the various services throughout the building, including the sprinkler system, and will supplement the city water supply.

The Canadian General Electric Co., head office, Toronto, will erect a $40,000 addition to their plant.

The planing mill of the Peterborough Lumber Co. was totally destroyed by fire recently.

St. Marys.

W. W. Porter, Detroit, was here recently seeking a site on which to erect a factory for the manufacture of farm tractors.

St. Thomas.

Plant and stock pens owned by the St. Thomas Packing Company were destroyed by fire. The loss is estimated at $10,000.

Sarnia.

The $40,000 to be raised by Port Huron in order to secure for that city a branch factory of the Mueller Manufacturing Company of this city has been secured. Bids are being asked for the construction of the three new buildings, which must be completed within three months. The site of the new plant is on Lapeer Avenue and covers 45 acres.

Sault Ste. Marie.

The Algoma Steel Corporation will erect six Gunite buildings to be erected by the Cement-Gun method.

Smooth Rock Falls.

The new plant of the Mattagami Pulp & Paper Co. has been completed.

Strathroy.

Work will start soon on the conversion of a high school into factory for the Andrews Wire Works of Canada, Ltd., Watford.

Tamworth.

Tamworth is all agog over the establishment there of the Imperial Knitting Company which has bought the building of the Jones Milling Co. and expects to be ready to start business in a few weeks' time with fully 100 hands.

Toronto.

The City Architect issued the following building permits: Toronto Carpet Manufacturing Co., addition to boiler house, 1179 King Street West, $2,500, and Toronto Electric Supply Works, alterations to factory building, east side of Hanna Avenue, near King, $3,000.

Messrs. Fillis, Irving & McFadden is the name of a new firm of hosiery manufacturers who have started business at 28 Temperance Street, Toronto. Three members of this firm were formerly connected with the Paton Mfg. Company, Sherbrooke, Quebec, and have had long experience in hosiery manufacture. This plant is equipped to turn out a full line of hosiery for the trade.



PETERBOROUGH
ONTARIO, CANADA

The Manufacturer in Peterborough has many advantages. He connects directly with the G.T.R. and C.P.R., and by canal with all principal Waterways. He has abundant cheap electricity. He draws for his labor from a population of 24,000 industrious, home-loving people. Peterborough is the town worth living in, having all City advantages with fine country surrounding, excellent educational facilities and very moderate living expense.

FINEST LOCATION IN CANADA FOR MANUFACTURERS

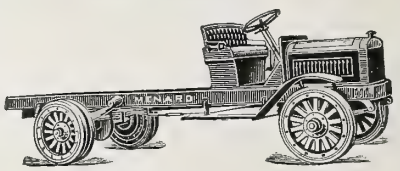
Hydro-Electric power is developed on the Otonabee River, and connecting Waters, by a system owned by the City, and rates are low. Peterborough has been notably free from labor troubles, and our Manufacturers have had no trouble in procuring labor of all classes. Labor costs less than in the larger Cities.

CENTRE OF POPULATION EXCELLENT TRANSPORTATION FACILITIES

If Transportation charges are an important part of your manufacturing problem, Peterborough will interest you. It has direct railway connection with all big Centres, being situated between Montreal and Toronto.

There are over 60 factories, the largest employing about 2,000 hands. It is the civic policy to encourage manufacturers, and the city is reserving for new comers a number of very desirable manufacturing sites. For further particulars, write, wire or telephone—

THE CITY CLERK, Peterborough, Ontario, Canada



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Every owner of a MENARD is a booster for the MENARD

Write for catalogue and prices

Menard Motor Truck Co., Ltd.

Windsor - Ontario, Canada



CANADA

Should You Be Exempt?

Every facility is afforded those who have reasonable ground for applying for exemption under the Military Service Act. Each man's case will be considered by a local, civil board, sitting in the locality where he lives, and will be decided as is desirable in the national interest.

The idea behind the Military Service Act is to call up first only those whose absence from civilian occupations will cause least disturbance to the country's economic and social life. One hundred thousand reinforcements — *no more*—are to be raised under the Act.

Cases of Exemption

Over 1,250 civic tribunals have been organized throughout Canada, known as Exemption Tribunals. These boards are comprised of 2 members, one appointed by the county judge and one by a joint committee of Parliament. It will be seen that these tribunals are non-military and independent. The members are men closely acquainted with conditions in the places where they sit and will be able to give each case sympathetic attention.

National Interest Will Govern Exemptions

Consideration will be given to applications for exemption received from men engaged in the production or manufacture of commodities necessary to the conduct of the war and the support of those at home and cases in which real hardship would be caused by the withdrawal. Not all men who register these claims will be exempted, but such claims will receive careful consideration. National interest must govern.

Promptness is Essential

Prompt application for exemption is strongly urged upon all who, being included in the first class, believe they deserve exemption. But first visit a Medical Board and find out if any further action is required. Unless the Medical examination places you in Category A., you have no immediate obligation for service.

Issued by
The Military Service Council

126

The Griffin Glove Company is the name of a new firm which have started the manufacture of knitted gloves at 364 Richmond Street West, Toronto.

A building permit has been issued to the Toronto Hosiery Co. for a factory addition at 1103 Queen St. West, to cost $1,600.

The Canadian Dyers' Association, Limited, of Toronto, are enlarging their present plant to about three times its former capacity by the addition of a modern brick structure, and the complete remodelling of the present building. This is being equipped with a complete Sirroco hot air system of ventilating and heating. An addition of about twenty machines is being made to the equipment, which will bring their capacity up to about 150,000 yards of cloth a week. Electric power is being used with steam plant for reserve. The new additions are being made under the supervision of the manager, Mr. G. E. Templeton, who came to the Canadian Dyers' Association, Limited, several months ago from Middlesex Mills, London. Mr. Templeton has had a life-long experience in the dyeing industry, and has been associated with several prominent Canadian dyeing concerns.

An agreement has been reached whereby the Imperial Oil Company will lease from the Toronto Harbor Board about 4 acres of factory sites, situated southeast of the Don. The transaction is at the rate of $15,000 an acre, and 300 feet of dockage will be leased for 21 years, renewable, at $1,500 per annum.

The Dickinson Dye Works of Toronto have recently made several important additions to their plant to take care of the rapidly increasing trade, among which are two Klauder-Weldon machines. They have also enlarged the building, and are now prepared to take care of much larger trade than heretofore. Mr. Dickinson, of this firm, is a practical dyer, being a graduate of the Huddersfield College, of Huddersfield, England.

The Yorkshire Wool Stock Mills, of Toronto, have just been equipped with an entirely new line of machinery, increasing the capacity one hundred per cent. They have also installed the latest type of Wool Duster Equipment, and are in a position to do custom wool dusting for the trade.

The Palm Olive Company of Canada, Limited, 155 George Street, will erect a $3,500 power-house.

Walkerville.

Contracts have been awarded in connection with the erection of a $16,000 forge shop for the Dominion Stamping Co.

Welland.

Moulding shop owned by the Welland Machine and Foundries, Limited, Victoria Street, was destroyed by fire. Loss, $3,500.

West Lorne.

Ratepayers passed a by-law to loan $5,000 to Bernard C. Weisbrood, to start a textile factory here. Work will be started as soon as possible.

QUEBEC.

Beauharnois.

The Independent Silk Co., Limited, 52 Nazareth Street, Montreal, plans erection of a factory.

Chambly Station.

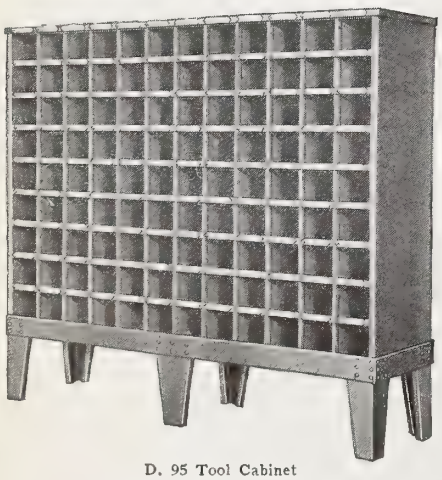
The Canadian Leatherboard Company are in the market for shafting, pulleys and belting for their manufacturing plant.

Joliette.

The Acme Glove Works, Ltd., St. Charles Borromee, plan erection of factory addition.

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D. 95 Tool Cabinet

OUR steel equipment is saving time, space and money for Canada's greatest industries. Why not yours?

The tool cabinet illustrated will earn its cost very soon by taking proper care of costly tools, parts, etc.

Workmen take better care of such stock when they see how it is regarded by the firm.

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Manufacturing a Full Line of

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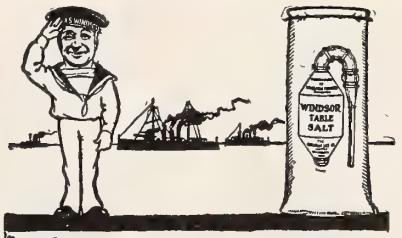
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Having the raw material on hand to spin the above we can guarantee delivery.

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It has been his standard of purity for years, and has always maintained its well-earned reputation as the "Canadian Salt without a fault."

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LINK-BELT is made in a variety of types, each suited to specific duty in elevating, conveying and power transmission. We are the manufacturers of the original Ewart Link-Belt, as well as numerous other types.



"C" Class Link-Belt
For handling gritty and abrasive materials.

Submit your problems for the handling of materials in bulk or packages to us for solution. We can devise simple systems for elevating and conveying that will save labor and time in your plant.

This is the

Mark of Quality

It appears on every Link-Belt manufactured by us, and is your guarantee of reliability in material, workmanship, inspection and service.

CANADIAN LINK-BELT CO., LTD.

Manufacturing Plant and Offices at
265 WEST WELLINGTON ST.
TORONTO

Montreal.

In referring to an enlargement of the plant of the A. R. Whittall Can Co., Limited, in the October issue, the company was inadvertently referred to as the A. R. Whittall Canadian Co., Limited. Readers will kindly note this correction. With the addition, the present plant is being doubled. The company is also working on plans for an entirely new building, which will be about 400 x 200 feet and four stories, when completed. This with the railway sidings necessary to the can factory will cover about five acres of ground.

Sherbrooke.

It is understood that the firm of MacKinnon, Holmes & Co., Limited, have recently received from the Imperial authorities a large order for marine work which will keep their plant in operation for many months to come.

St. Hyacinthe.

Mr. G. A. Roy, of G. A. Roy, Limited, Bagot, P.Q., has been granted a $35,000 bonus by St. Hyacinthe, the agreement becoming operative without the necessity of a poll. It is understood that a new company will erect a large plant for manufacturing caskets and casket hardware. The new concern will buy out G. A. Roy, Limited, and the Godue Casket Mfg. Co.

FARM FIRE PROTECTION.

Farmers in Neighborhood of an Ohio Town have Established a Fire-Fighting Organization.

The protection from fire of farm properties is a problem which has seldom been attempted in any practical way, aside from the exceptional use of fireproofing materials. In a small town in Ohio, Hollandsburg by name, the villagers and the farmers for a distance of five miles out have combined forces and purchased a motor truck equipped with chemical extinguishers, ladders, etc., and arrangements have been made for answering fire calls anywhere in the district. If this experiment proves successful a widespread adoption of this plan should follow.

THE VALUE OF A SMILE.

Nobody ever added up
The value of a smile;
We know how much a dollar's worth,
And how much is a mile;
We know the distance to the sun,
The size and weight of earth;
But no one here can tell us just
How much a smile is worth.

—*Exchange.*

VEST POCKET INFORMATION.

There has just been issued a handy little booklet which contains a list of all the products manufactured by the E. I. du Pont de Nemours and Associated Companies, namely, Du Pont Chemical Works, Du Pont Fabrikoid Company, The Arlington Company and Harrisons, Inc.

Of course this booklet does not indicate who uses the products or how they are used, as does the Du Pont Products Book, but it will no doubt prove of interest as well as of value to many mercantile and industrial men. It is small enough to fit in a busy man's pocket. It will be sent upon application to the home office at Wilmington, Del.

Put it up to us

before you place your order for

SHEET METAL STAMPINGS

and

PRESSED STEEL PARTS

A battery of over 50 presses is available for your work.

Our facilities ensure prompt deliveries at right prices.

W. H. BANFIELD AND SONS, LIMITED

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Tool Room Partitions



Machinery Guards
Window Guards
and
Wire Work of
every description

WIRE ROPE
ROPE FITTINGS

Manufactured by

THE B. GREENING WIRE CO., LIMITED

HAMILTON, ONT. MONTREAL, QUE.

HOW AUTOMATIC STARTERS WORK

Explanation of the Operation of One of the Most Useful of Devices for Saving Time in the Factory.

Due to the unprecedented demand for manufactured products of every kind, industrial plants in all parts of the country are being taxed to their utmost capacity. In addition, the cost of labor and machinery has been increasing at an extremely rapid rate. The magnitude of these factors has forced manufacturers to employ every means available in an effort to increase production or to reduce operating expenses. This may be accomplished by reducing the numbers of operators, by simplifying the duties of the present operators so that more attention may be devoted to the production of a larger quantity and a higher grade of product, or by furnishing better protection to the apparatus installed, thereby insuring continuity of service.

One of the chief factors by which the desired results may be accomplished is the use of automatic starters and controllers for the motor-driven machinery employed. Foremost among the companies producing such control apparatus is the Westinghouse Electric & Manufacturing Company at East Pittsburg, Pa. These automatic starters are for use with single phase or polyphase squirrel cage and wound-rotor induction motors, where it is desired to start the motor from a remote point or where automatic acceleration is required to guard against improper starting by unskilled operators. They are simple, reliable, and rugged in construction, consisting of a magnetic contactor panel and a master switch, which may be either a push button, a float switch, a pressure regulator, or similar device for closing the control circuit, depending upon the service. The vital element is the magnetic contactor. The contactors used on these starters are of a type which has been used by the Westinghouse Company with marked success in steel mill, cement plant, and mine installations where the requirements are extremely severe. The contactors are opened by strong spring action assisted by gravity. The destructive action of the arc is reduced to a minimum by strong blowout coils and arcing horns.

The operation of the starters is very simple. When starting motors during line shafting, woodworking and machine tools and similar apparatus, it is only necessary to press a button, close a small knife or snap switch. The starter then automatically makes the proper connections to limit the starting current to a suitable value and to vary the time required for acceleration according to the load on the motor, thus preventing damage to the machinery by too slow or too rapid acceleration, and saving time by bringing the motor to full speed at the most rapid permissible rate. When used for pump or compressor service in connection with a float switcher pressure gauge, the action of the starters is entirely automatic, the motors being started when the pressure or liquid level of the tank controlled falls to a predetermined point and stopped when the desired maximum pressure or level is reached, or *vice versa*.

The automatic starters for squirrel-cage motors are most frequently employed for starting motors operating centrifugal pumps, air compressors, fans, blowers, metal-working and wood-working machines, and other apparatus requiring starting torque less than full load torque. This type of starter, however, owing to the wide application of squirrel-cage motors for industrial service, can be applied economically for starting service in nearly every industry.

Squirrel-cage motors of 5 horsepower and smaller are usually connected direct to the line. Large squirrel-cage motors are first impressed with low voltage from auto trans-

YOU CAN INCREASE YOUR POWER WITHOUT INCREASING THE SIZE OF YOUR POWER PLANT

Your present line shafting is consuming from 15% to 60% of your power.

The Chapman Double Ball Bearing will save this waste and turn it into productive energy.

They will also reduce your oiling and attention to a minimum.

They fit any adjustable hanger and the change can be made with but little delay to you.

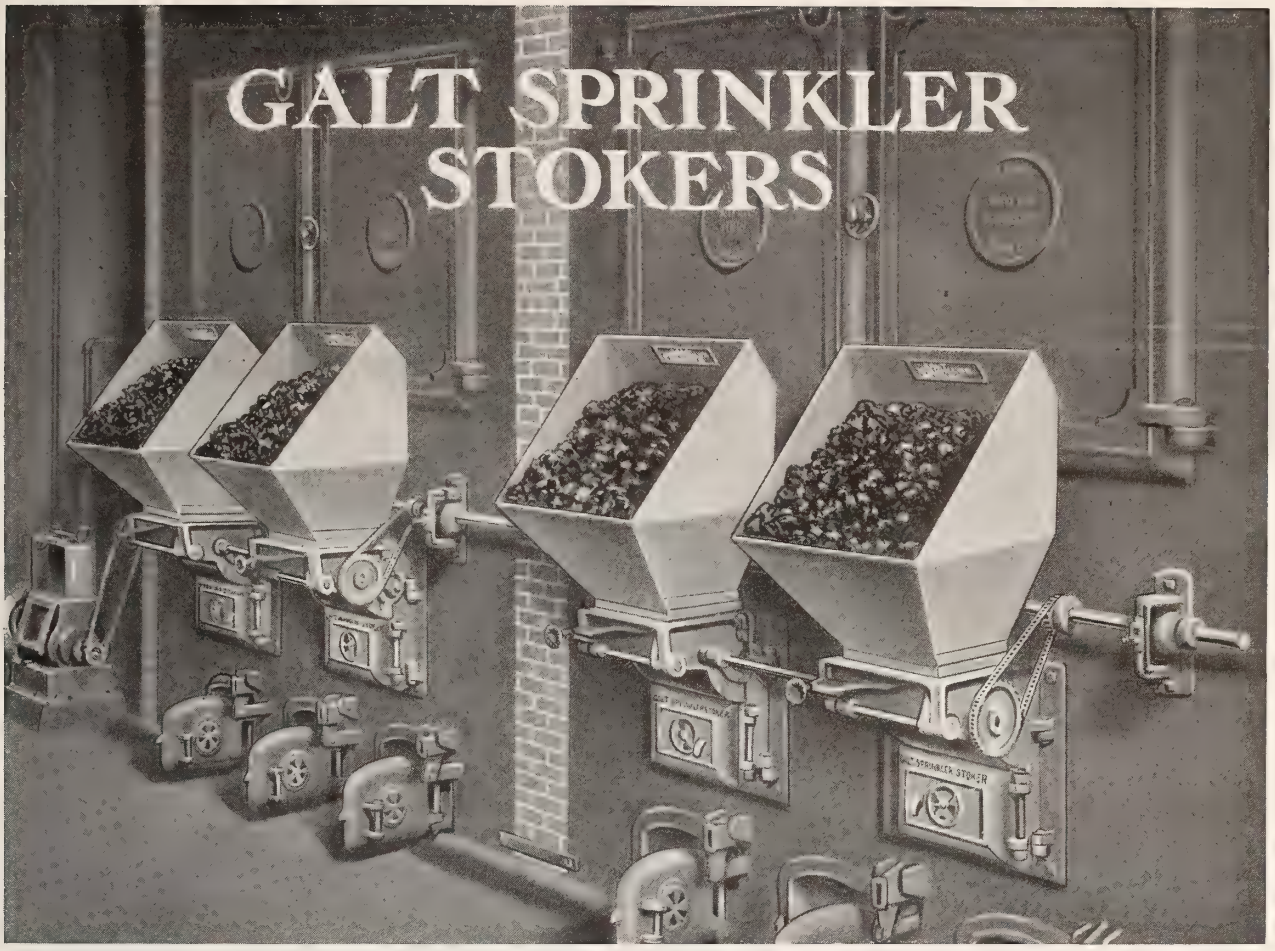


In use in over 2,000 Canadian Factories

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OF CANADA LIMITED

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Galt Sprinkler Stokers Applied to two 300 H.P. Water Tube Boilers. Since the Above Photograph was taken Additional Boilers of this Plant have been Equipped with Galt Stokers

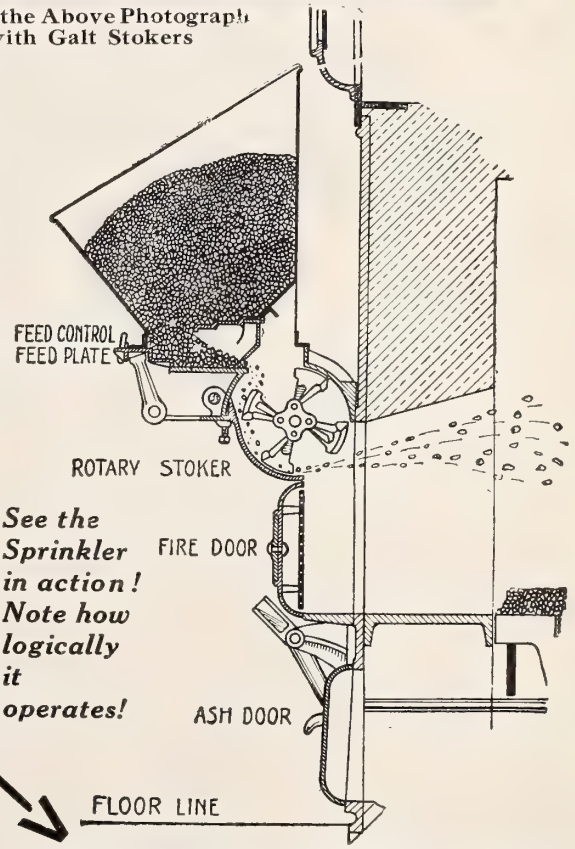
When Coal Costs So Much Why Waste It?

Don't you think you are burning too much fuel? Ask for our mechanical engineer to look over your entire plant. His service is at your command without charge and places you under no obligation whatever.

The Bureau of Mines, Washington, D.C., have just issued a report on exhaustive tests made by eminent engineering experts in the burning of fuel under power-plant boilers.

AND THEIR VERDICT WAS—

That the highest boiler efficiency on every test was always obtained with a level fire 3 to 4 inches thick, combined with frequent and light charges of fuel to the furnace, and the nearer the supply of coal approached a continuous feed the better were the results.



See the Sprinkler in action! Note how logically it operates!

The Galt Sprinkler Stoker automatically feeds and uniformly spreads the fuel to the furnace in a light continuous stream and gives a perfectly level fire, 3 to 4 inches thick.

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TORONTO: W. M. McROBERT, 92 Symington Ave.
Phone Junc. 3354

formers or connected to the line through resistance so that in either case the starting current is reduced. When the speed of the motor has reached such a point that the starting current has decreased sufficiently the motor is then automatically connected to the line.

The automatic starters for wound-rotor motors are particularly adaptable for starting motors driving plunger pumps, positive pressure blowers, air compressors, long line shafts, and loads having heavy inertia. The severe starting conditions encountered in this class of service require from 100 to 200 per cent. full load torque in starting, making automatic starting a very desirable feature.

When an automatic starter is used in connection with a wound-rotor motor, the line switch is first closed, with the maximum resistance in the rotor circuit. When the speed falls to a pre-determined value, a relay closes a magnetic contactor which cuts out a part of the resistance in the rotor circuit. Each contactor operates in a similar manner, cutting out its portion of the resistance at the proper time until all the resistance is short circuited by the last contactor.

The power on any circuit may fail suddenly, it is important that some protection be afforded both operator and motor against an unforeseen return of power. This protection may be provided for motors operating pumps, compressors, etc., by a low-voltage release to disconnect the motor from the line when the voltage is low or power fails entirely. Then, as soon as power returns, the motor will automatically start up again. In many applications, however, such as for motors operating machine tools or wood-working machines, low voltage protection is required. Motors so protected are disconnected from the line when power fails and will not start when power comes on again until the operator presses a button or manipulates a similar device. Hence, there is no danger from the unexpected starting of a machine.

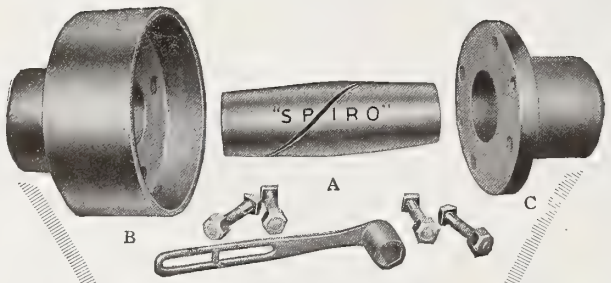
The advantage resulting from the use of automatic starters for induction motors comprise: absolute protection to both operator and expensive machinery, proper starting at the most rapid permissible rate, economy in operation and maintenance, convenience of remote control, and automatic operation.

KILLING THE SQUEAK IN PULLEYS.

By Filling Up Crevices with Glue, all Unpleasant Noise Was Removed.

Several wood pulleys, which were used for many years in a sawmill and woodworking plant, became partially unglued and got to squeaking, says Lyman Robbins, in the *Woodworker*. As different portions of the pulleys came under the belt strain, the loosened parts would slide over each other, and the result resembled the intensified squeaking of wagon wheels which have become "felloe-bound." Several pulleys squeaking together make a very uncomfortable addition to shop sounds, although it did not (thus far, at least), seem to affect the strength of the pulleys. However, it was decided to attempt a cure.

The pulleys were removed on Friday night and placed in the dry room until Saturday morning, when they were taken, one at a time, and treated with hot glue. With a small brush and a case knife, very thin glue was worked into each and every crack, crevice and cavity to be found on each pulley. The hot glue was worked deeply into the joints which had opened, and each crack between the layers of wood was worked full of glue. The pulley also being hot, the glue soaked in very rapidly, and as the gluing was done



"Spiro" for Sure Grip

TRADE B D-S MARK

SAFETY!

The sure-grip of the Spiro is a safeguard against accidents and shutdowns.

There are no keys to become loose or make quick removal difficult.

The pull of the bolts on the two halves of the coupling compresses the spiral slotted sleeve—compelling a tight grip on the full surface of the shaft.

When the bolts are tight, the coupling is tight. It is safely locked to the shaft.

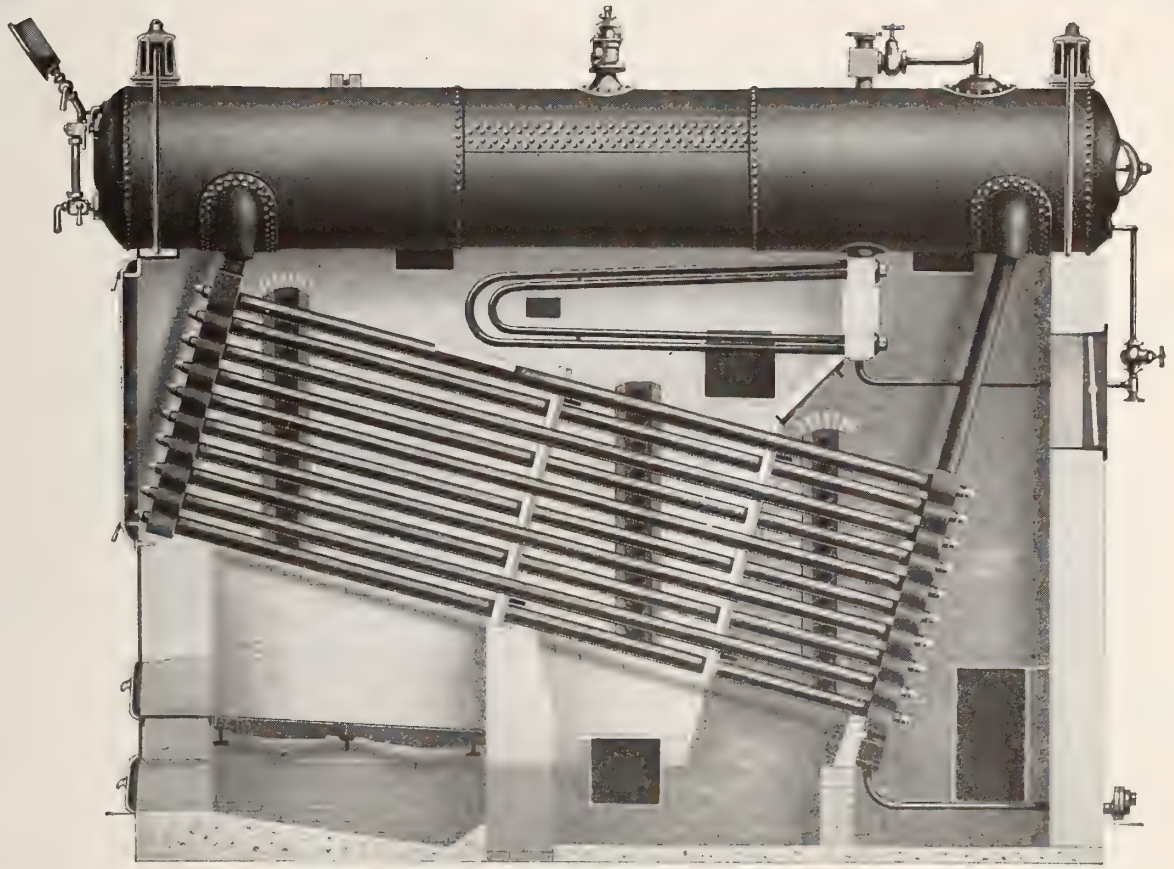
Send for the Spiro Catalogue.

Canadian Bond Hanger & Coupling Co., Limited

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G. & McC. Co.

BOILERS



Sectional View, St'd Type "B" Sectional Water Tube Boiler with Superheater attached.

G. & McC. Water Tube Boilers are fitted with large Steam and Water Drums, connecting nipples of increased size and straight 4" Tubes, all of which tend to insure **POSITIVE AND RAPID CIRCULATION AND INCREASED STEAMING CAPACITY.**

All parts subjected to steam pressure are made of FORGED STEEL.

G. & McC. Engines and Boilers are giving satisfaction in thousands of
CANADA'S LEADING INDUSTRIAL INSTITUTIONS

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For quick heats you need

"Canadian" Rivet Forges

Write for Catalog 18c

Canadian Blower & Forge Co.

KITCHENER - ONTARIO

in a room where the temperature was little, if any, below that of the dry-room, the wood did not chill in the least during the gluing process.

As soon as every crevice had been filled the pulley was returned to its place in the dry-house and allowed to remain there until all the pulleys had been treated. Then the first pulley was brought back and more glue worked into the joints. After each pulley had been treated three or four times with hot glue, the joints seemed to take up no more and the pulleys were returned to the dry-room and left there over Sunday. On Monday morning they were removed; the inside of each pulley seemed to carry a yellow glaze, which evidently was largely glue. The face was also pretty well covered, but not as thoroughly as the sides and back of the rim. These pulleys were put to work and for two years not a squeak was heard from them.

IS GREASE BETTER THAN OIL?

Story of How a Foreman Made a Discovery and Found that Grease Made a Good Lubricant.

"Is grease better than oil for fast-running machines?" It depends considerably on the method of using grease and the condition of the bearing to which it is applied.

Some years ago a grease salesman came to the plant where I was foreman and tried to convince me that grease was the proper thing to use. I had tried grease several times, and had a box full of discarded cups that I proceeded to show him as evidence. He finally asked if I would put a couple on the line-shaft and try them out if he would send them free. I consented, and some time later a can of grease and cups came, and I put them on a bearing next to the

FIGURE YOUR COSTS CAREFULLY

Spend just a few minutes with your pencil, and you will realize that the returns on your fuel and equipment investment can be surprisingly increased with a MOREHEAD "Back to Boiler" SYSTEM. Every heat unit in your steam represents so much coal—so much cold cash. The

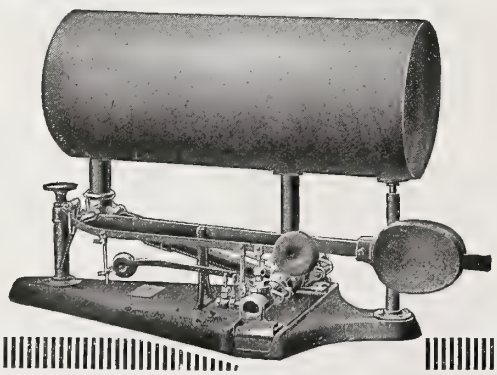
Morehead Back to Boiler SYSTEM

enables you to get full use of every one of these heat units. The Morehead System takes every ounce of condensed moisture from your steam lines and returns it to the boiler—without waste—automatically. The operation is 50% cheaper than a pump can do it—and the condensation is 100 to 150° hotter.

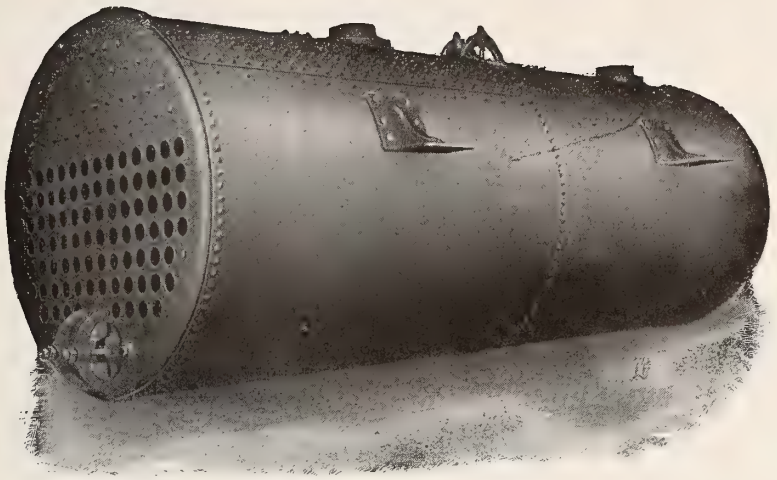
If you want the very best method of handling condensation—interest yourself in the MOREHEAD SYSTEM.

Canadian Morehead Manufacturing Company

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STANDARD RETURN TUBULAR BOILER

We make boilers of all kinds for any service.

We are also sole Canadian makers of Erie City Water Tube Boilers, Vertical and Horizontal.

The large number of pleased and satisfied owners of "INGLIS" Boilers is our best advertisement.

For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

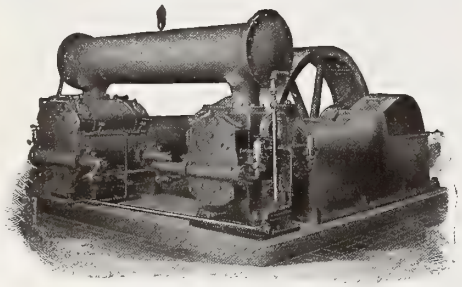
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main drive belt. I kept my eye on them for a few days and not noticing anything wrong, I asked the oiler how he found them. He replied, "Oh, all right; I oil the boxes every day." You can imagine my surprise, and I asked what for. He replied that the grease didn't seem to run and he didn't want the boxes to get hot. "But," I said, "the grease is supposed to answer, and from now on don't oil them; I want to see if it does the work." It went on a day or two, then a week or so and finally I forgot all about them.

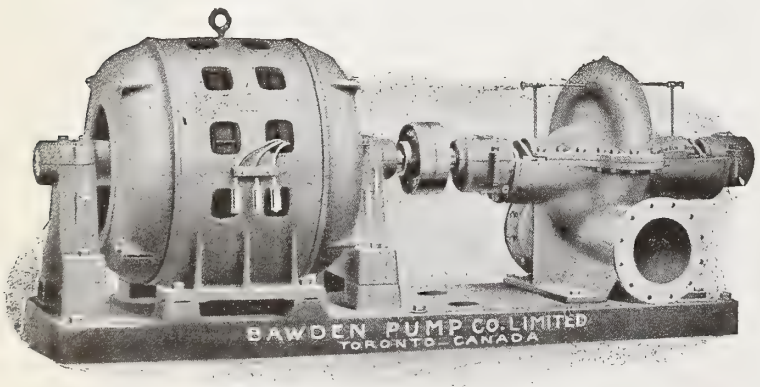
One day the salesman dropped in and asked about the grease; if I had received it and how it worked. I had to confess I had forgotten it entirely—this was some two months after the cups had been put on. We examined the cups and found there was a little over one-fourth inch of grease gone. He sold the firm cups and grease for the entire line-shafting and they proved a great money-saver. Since then I have tried grease in a number of places, such as the step in the lathe, bearings on the self-feed rip saws and even planers, and have never had one burn out. Now I am testing it out on a rod or dowel machine. On the line-shaft we use the copper pin in grease cups.

STEEL HANDS IN ORILLIA.

Employee of Motor Company, who Lost Hands in Accident, Does Wonderful Things with New Members.

For some time the nations at war have sought artificial arms and hands that will enable cripples to resume their former occupations with little disadvantage. The need of effective devices of this sort is felt not only by war cripples, but by the many who have lost their members in industrial pursuits. Andrew Gawley, an employee of the Fisher Motor

BAWDEN PUMPS



Steam and Power Centrifugal and Reciprocating Pumps for all purposes.

Canadian Made Pumps With a Reputation Equal to any Pump in the World

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Locomotives on trunk line railroads have the advantage of the best facilities for inspection and repairs.

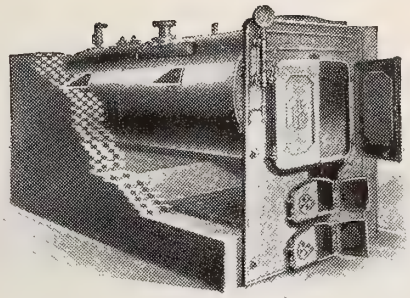
Industrial locomotives face different conditions. They must work day after day in the hardest service, and often in localities where repairs cannot be made without great inconvenience. That is why we build our industrial locomotives from interchangeable stock parts. With this system every part must fit every other locomotive of the same size and design, and long delays waiting for duplicate parts is avoided. Interchangeable parts kept on hand at our Works for prompt shipment.

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E. Leonard & Sons, Limited

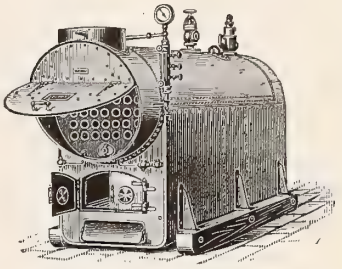
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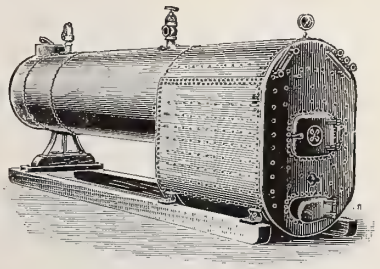


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BOILERS
ENGINES

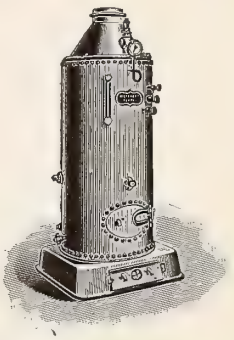
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Steel Shipbuilders Engineers and Boilermakers

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Tugs, Scows and Dredges, Marine Engines and Boilers.

STATIONARY BOILERS
Horizontal and Water Tube Type Stacks, Tanks, Water Flumes.

SPECIAL MACHINERY
Estimates given on all kinds of special Machinery.

REPAIR WORK
Given prompt attention.

Office and Works:
Esplanade St. East, Toronto

Company, Orillia, Ontario, has steel hands to replace the hands he lost some years ago through contact with a circular saw, which were made to his own design. These are said to be very effective indeed. Mr. Gawley is now employed in the tool crib of the Fisher Motor Company, and he can pick up pieces of varying sizes and weights with confidence and ease. He keeps track of the printed forms of all material that goes out and attends to the general duties of his position.

Before entering the tool crib Mr. Gawley worked on a drilling machine. His steel hands are so strong that when drilling shell adapters weighing forty-five pounds each, he was able to lift an adapter on and off the machine table with one hand, being the only man who could handle the pieces in this way. Yet the steel hands are so well under control that he can write a legible hand, pick up a fragile cup by the handle, dress himself, light a lamp, and do many other things that would seem impossible of accomplishment by an artificial member.

WIPING OUT THE DEADLINE.

Man of Mature Years no Longer Looked Upon as a Dead One in Industrial Life.

During the last twenty-five years or so many large industrial concerns, railroads and business houses have had an unwritten law that no man over forty-five years of age should be hired. Much has been said and written about the economic waste that has resulted from this policy, which has unnecessarily shortened by many years the productive life of countless thousands of men, and forced women and immature boys to assume the burden of family support, simply because they could get jobs, while the head of the family, though at the zenith of his mental and physical capacity, found his way absolutely barred. The illogical character of the restriction is evident when one stops to consider that the general application of the deadline at forty-five would at once eliminate at least seventy-five per cent. of the principals and active executives of the great business enterprises of the country, leave our universities and colleges with depleted faculties, decimate Congress, cabinet and courts, and, incidentally, would have relegated President Wilson, Roosevelt and Lloyd-George to the scrap heap at least fifteen years ago. Since passing the "deadline" Teddy has hunted lions in Africa, discovered a "River of Doubt" in South America, run for President, helped edit a great national weekly, gone down in a submarine and up in an airship, tried his best to take on the job of walloping the Kaiser, and is to-day going up and down the country preaching patriotism and unity and thereby helping win the war. Yet if fifteen years ago he had, incognito, applied for a job in factory, workshop or office, and stated his age, the chances are ten to one he would even then have been told that he was "too old!"

Confronted by a shrinking labor supply the age deadline is vanishing into the limbo of forgotten things. In Chicago numerous concerns have during the last few months employed hundreds of men past forty-five for all kinds of work—clerical, mechanical and manual—with the most satisfactory results. As a matter of fact, employers have reported that in efficiency and reliability, these men have excelled their juniors. One of the great railroad systems of the country, which for many years has refused to hire, in any capacity, men who had passed forty-five, now announces its readiness to employ men up to seventy who possess the necessary quali-

Better Twist Drills

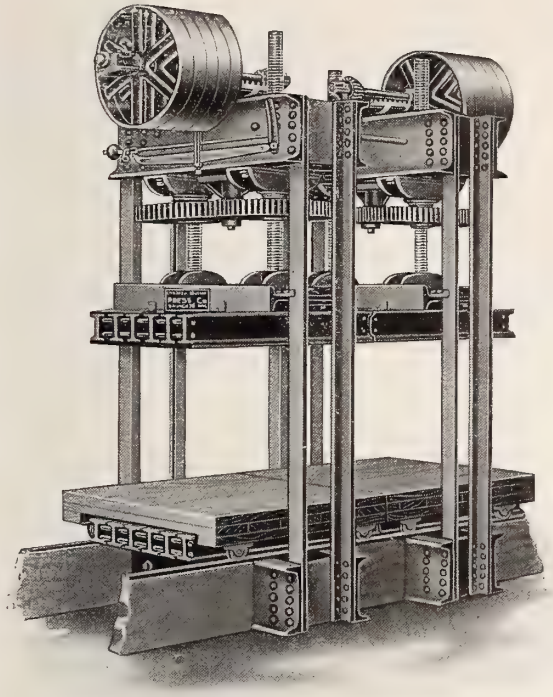
MORROW Drills are Canadian made, and are guaranteed under test that they will do more work than Drills of other makes. A little higher in price perhaps, but worth the difference.

JOHN MORROW SCREW AND NUT CO. LIMITED

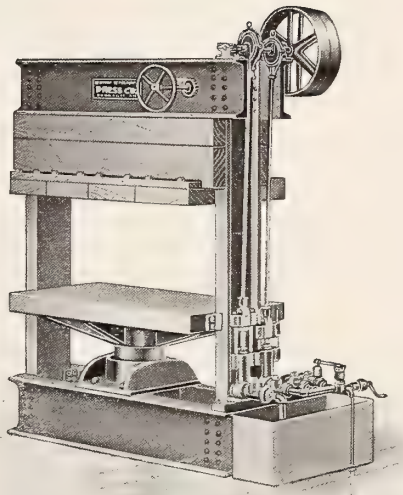
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VENEER PRESSES



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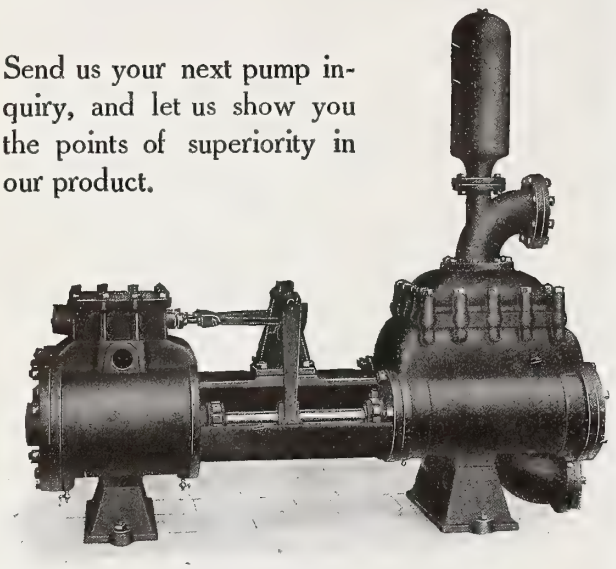
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THE HYDRAULIC MACHINERY CO. LIMITED

MONTREAL, CAN.

HIGH-CLASS PUMPING MACHINERY

Send us your next pump inquiry, and let us show you the points of superiority in our product.



The Smart-Turner Machine Co., LIMITED

HAMILTON, CANADA

fications. In other words, the age limit is abolished. Of course, this does not mean that men of sixty or seventy will be employed for work that requires younger men, but it does mean that to a greater degree than at any time in the last twenty-five years fitness and capability are to be the governing factors, rather than an arbitrary and senseless age limit.—*American Lumberman.*

FRESH AIR AND DISEASE.

The Body Cannot Perform Its Functions Properly Except Under Constant Air Exchange.

Dr. George Webster, in an address before the Chicago Medical Society, has shown the relative importance of the subject of clean air by dividing occupational diseases into five classes:

1. Due to gases, vapors and high temperatures.
2. Due to increased or decreased atmospheric pressure.
3. Due to metallic poison, dust or fume.
4. Due to organic or inorganic dust and heated atmosphere.
5. Due to fatigue.

This classification seems to show the part played by fresh air in the prevention of occupational disease, and an earlier general knowledge of the subject would have saved the workers an immense amount of needless suffering and ill health.

It has been estimated that an adult man when sitting at rest takes 16 respirations per minute of 30 cubic inches each, or 480 cubic inches per minute; and a worker in an eight-hour day breathes from 250 to 350 cubic feet, according to the vigor of his muscular exertion. The basic relation between vitality and normal lung function has been well established in the

CANADIAN TUBE & IRON CO., LIMITED

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WROUGHT PIPE BLACK AND GALVANIZED 1/8 TO 4 INCH

Thoroughly inspected and tested to 600 lbs. pressure and branded.

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Rapid production is dependent on the use of ECONOMICAL TOOLS AND STEEL. It is safer ***not*** to specify High Speed Steel, but

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WORKS, LONGUEUIL, P.Q.

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CAPACITY 135,000 TONS

Railway and Highway Bridges, Swing and Bascule Spans, Buildings of all Kinds, Hemispherical Bottom and other Tanks, Transmission Poles and Towers, Riveted Pipe, Caissons, Barges, Turntables, Electric and Hand Power Cranes, Hoisting Appliances, Lift Locks, Hydraulic Regulating Gates, etc. Gear Cutting and General Machine Work.

Large Stock of Standard Structural Material at All Works

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Canadian Pacific Railway Bridge, Trenton, Ont.
25 Spans, Weight 2,500,000 Lbs.

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ENGINEERS, MANUFACTURERS, CONTRACTORS

For Steam Railways, Electric Railways, Highways, Etc. For Factories, Offices, Warehouses, Power Stations, Mill Buildings, or any other purposes

STEEL Bridges Buildings

scientific calculation that respiration during the average work day represents an expenditure of energy expressed by the lifting of seven tons one foot.

Whether the functions of the body during the normal working period, shall be permitted to replace the broken-down tissue caused by the liberation of this energy, or steadily to drain the system of its reserve vital forces, depends upon the quantity and quality of the pure air that prevents the poisons of fatigue from accumulating. Air should not be permitted to stagnate in a work-room, however ample its dimensions. The pores of the body are directly acted upon by the air that surrounds them; and experiment has proved that the body cannot perform its functions properly except under the stimulus of a constant air exchange.

INSURING THE WORKERS.

Application of the Group Insurance Idea is Increasing by Leaps and Bounds.

An interesting study of the growth of group insurance in the United States in the past five years was given before the National Convention of Insurance Commissioners at St. Paul recently by Actuary H. Pierson Hammond, of the Connecticut insurance department.

As will be seen in the following table, group insurance starting in 1912, has developed until on June 30, 1917, there were approximately 325,000 employees in this country insured under this plan for over $250,000,000 in the aggregate, an average of over $760 per employee insured. If we assume that an average family consists of five persons, or possibly four, it is safe to say that probably 1,500,000 individuals are directly interested in this form of insurance:

In force.	Number of Employees.	Amount of Insurance.
Dec. 31, 1912	11,450	$13,083,000
Dec. 31, 1913	30,125	28,235,000
Dec. 31, 1914	52,625	50,605,000
Dec. 31, 1915	105,000	83,920,000
Dec. 31, 1916	202,000	155,300,000
June 30, 1917	325,000	250,000,000

The figures indicate that the volume of group insurance has steadily increased since 1912. If one will compare the business in force at the end of 1916 with the corresponding figures as of June 30, 1917, he will see that a large volume of insurance is being written this year.

Mr. Hammond urged that no maximum limit for groups be made, but the minimum limit, one hundred lives, without medical examination, has already been practically agreed upon. Employees insured under a group policy should present a homogeneous group.

"I do not want you to get the impression that group insurance is a panacea for all ills that labor is heir to. It is not. At its best it can only exert a beneficial influence. It will not prevent strikes. In fact, life insurance companies prefer not to write plants where strikes have been numerous or are pending. Group insurance undoubtedly reduces the cost of 'turnover.' Available statistics do not as yet prove this conclusively. They indicate positively, however, that employees who are covered by group insurance tend to remain longer in their positions than heretofore, thereby reducing the cost of finding new employees."

STEEL CASTINGS

Manganese, Chrome, and Nickel Steel Castings from ¼ of a pound to 30,000 pounds

Steel and Semi-Steel Machine Moulded Gears any size up to 18 feet in diameter without the use of patterns

Hull Iron & Steel Foundries, Ltd.

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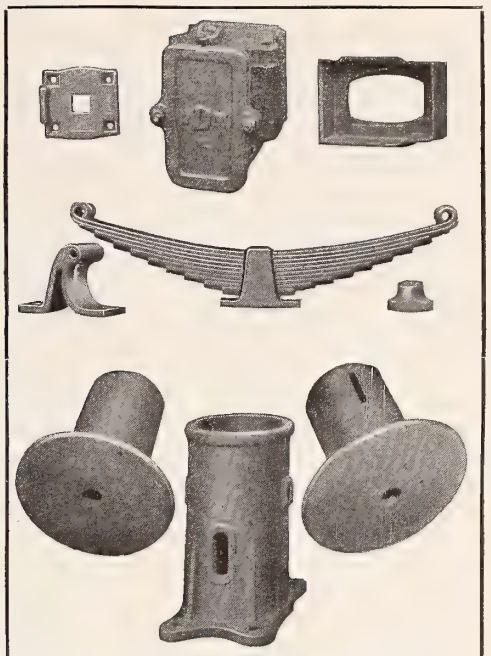
STEEL CASTINGS

Up to 100,000 lbs. Manganese,
Titanium, Vanadium, etc., etc.

We produce steel castings for every conceivable purpose, making a specialty of heavy castings, such as:

Hydraulic, Mill Gear, Car, Locomotive and Marine.

Write us for an estimate on your requirements—prompt attention to every inquiry assured.



Group of Steel Castings and Springs for Belgian State Railway Cars

Canadian Steel Foundries, Limited

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Address Inquiries P.O. Box 1630, Montreal

Acid Open Hearth Steel Castings for all purposes

Dominion Steel Foundry Company, Limited

ANNUAL CAPACITY 15,000 TONS

Hamilton, Ontario

ELECTRIC STEEL CASTINGS

WE CAN SUPPLY

Carbon Manganese, Alloy, Steel Castings Forging Ingots, Etc.

Write for prices and particulars

The Electric Steel and Metals Company, Limited

WELLAND, ONTARIO

MALLEABLE IRON CASTINGS

HIGH TENSILE STRENGTH



GALT MALLEABLE IRON CO.
LIMITED
GALT ONTARIO

HOLD YOUR GOOD WILL.

Manufacturers Cannot Afford, by Discontinuing Advertising, to Allow Their Advantages to Slip Away.

A manufacturer may be doing a record business in motor cars, or ploughs, or transportation (in the case of a railroad)—but that is no reason why he should stop advertising.

"Continuous advertising is good-will insurance," is the way C. H. Clark, of Robbins & Myers Company, of Springfield, O., regards it. "We look upon the advertising we do each year as a stone in the foundation of the permanent business we are building."

This company manufactures motors and has been compelled, under the stress of orders, to refuse enormous quantities of business from new prospects. This has not caused it to stop its advertising in the slightest degree. It continues to tell the public of the superior quality of the Robbins & Myers motors.

The advertising expenditure of this company is not regarded as something to be settled each year, but one of the permanent investments, such as factory buildings and other permanent assets. In short, the advertising is planned for the future and for its effect in the possible lean years when business may not be so encouraging.

A manufacturer who acquires good will by advertising should hesitate before he sacrifices it by letting his name and his product become forgotten. His competitors will be prompt to take advantage of such a mistaken policy.

Keep on advertising. It pays. If it did not the most successful men in the country would not constantly keep their product permanently before the public.

"Every Casting Clean and Uniform"

This is the reason our customers are sending us repeat orders on high-grade

GREY IRON CASTINGS
CORED OR SOLID

PLATING AND FINISHING OF CAST IRON FIXTURE PARTS AND ELECTRO GALVANIZING

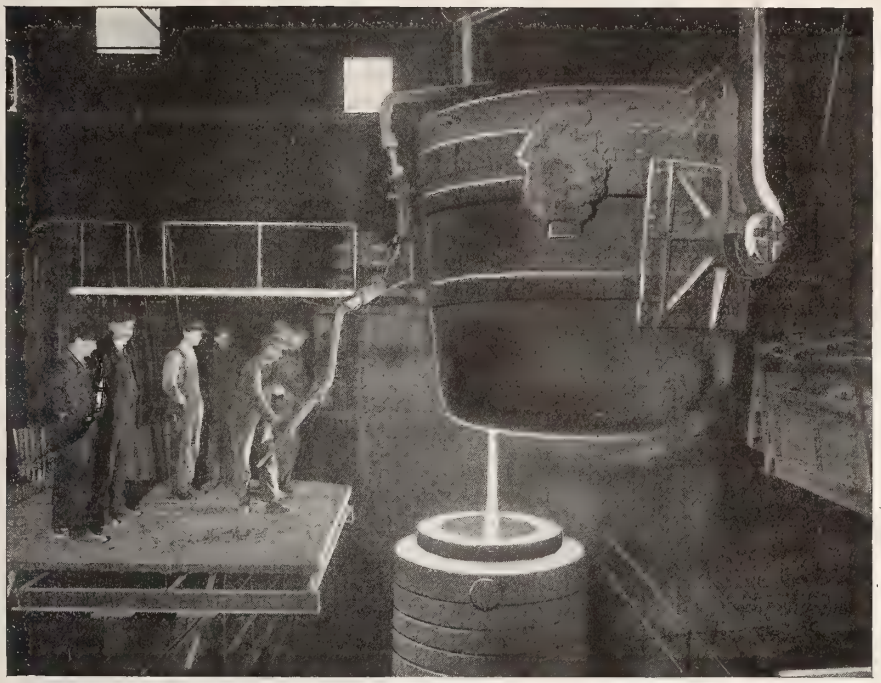
We use no scrap when melting our iron, and we are more than commonly careful to see that everything conduces to flawless material and workmanship. A trial order from you will demonstrate the superiority of our service.

YOUR ENQUIRY IS SOLICITED
WRITE OUR SALES OFFICE

Electrical Fittings & Foundry, Limited

Sales Office: 331 King St. W., Toronto, Canada
Works: PRESTON, CANADA

OUR FIELD IS THE WHOLE WORLD



A 30-Ton Ingot
being poured
at the
Blast Furnace
at
Sydney Mines
N.S.

"OLD SYDNEY COAL"

Shipped from North Sydney, N.S.

At Wabana, Nfld., the Company's Iron Mines are located, these being the richest in ore on the North American continent.

The Company's Collieries and Blast Furnaces are at Sydney Mines, N.S.

From the Steel Works and Car Works at New Glasgow come the Company's finished manufactured products.

Address All Correspondence to the Head Office

NOVA SCOTIA STEEL & COAL CO.
LIMITED

Head Offices:
NEW GLASGOW, N.S.

THE MARKING OF CASES.

A New Machine, Which is to the Shipping Room What the Typewriter is to the Office.

In the up-to-date shipping-room the marking of cases no longer calls for the artistic talent it used to in the days of the marking brush. Nor does it call for the use of a cumbersome, circular brass stencil containing all the characters required, each of which must be tediously brought into position letter by letter and figure by figure in forming a single line. Instead, anyone can work a stencil machine which cuts the required lettering on a piece of heavy paper. The machine is simple to operate, and any letter or figure can be cut by turning a handwheel until a pointer indicates the desired character, and then depressing a lever. With the stencil once cut, it is laid on the case and a stencil brush applied, marking the side of the case at one operation. It is said that the new method is neater, quicker and cheaper than old-fashioned methods; and this is not difficult to understand, since it is to the shipping-room what the typewriter is to the office.—*Scientific American.*

WHAT DOES STENOGRAPHY COST?

Productive Capacity of Each Typist in an Office May be Determined by Means of a Cyclometer.

Nine business houses out of every ten employing five or more stenographers or typists are purchasing this labor at a cost at least 10 per cent. above what it should be, says the *Scientific American.* A typist's worth cannot be estimated by casual observance. A 10 per cent. or even 20 per cent. difference in the amount of work turned out in a day's time is difficult to check up under ordinary methods, yet the difference means a 10 to 20 per cent. difference in the payroll. In order to give an accurate index of the productive capacity of every stenographer or typist, there has recently been introduced a typewriter cyclometer, which may be readily attached to any typewriter. By taking a reading of the cyclometer in the morning and again at closing time, it is immediately possible to check up the day's work of each stenographer or typist. Many of the largest business houses are using the cyclometer, some of them even going so far as to make up their payroll solely according to cyclometer readings.

JAP SHIPS TO THE RESCUE.

Four Fine Vessels Transferred from European Run to Engage in Carrying Trade Across the Pacific.

Pacific Coast papers announce that four vessels of the Nippon Yusen Kaisha fleet, the *Fushimi, Katoria, Kashima* and *Suwa Maru,* have been withdrawn from European service and will ply between Kobe, Victoria and Seattle. In making the change in its routes, the N.Y.K. is bringing its finest vessels to the port of Victoria. They have accommodation for 175 first, 110 second and 175 steerage passengers, and they will carry about 20,000 tons. They have been taken off the European run to meet the wishes of the Japanese Government, this request having a direct bearing on the solution of the steel embargo question with the United States.

Japanese shipyards are working day and night in the construction of steel ships, the material for which was procured from the United States, and when the latter country placed an embargo on the export of steel it naturally threatened to call a halt in the shipbuilding activities of Japan. Negotiations have been going on for some time between the two



STEEL PLATE WORK

We build—
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that jarring, grinding noise in your machine shop caused by the metal gears?

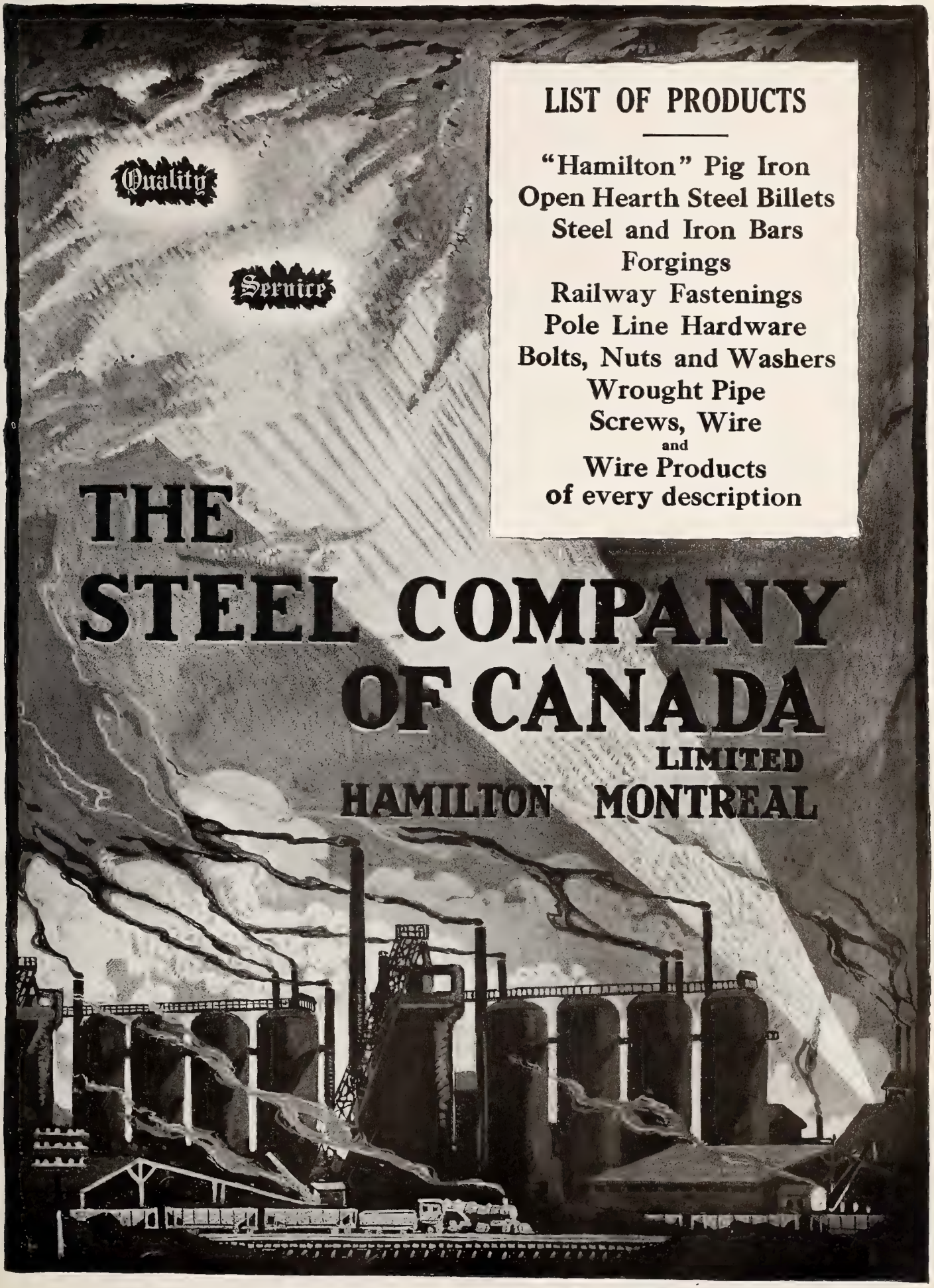
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countries with a view to having the embargo removed, and a special mission, headed by Baron Ishii, visited Washington in order to take the matter up and arrive at a satisfactory arrangement.

It has recently been announced that this mission has been successful, and that in return for the steel which the United States would permit Japan to have for the construction of ships, Japan would supply tonnage where it was most needed. The transfer of the four big N.Y.K. boats is, in part, a carrying out of this understanding.

The United States has executed huge orders of war necessaries for Russia, and all of these orders, including no less than 80,000 automobiles and a large number of freight cars, are ready for delivery. Because of lack of space, these cannot be shipped, and are piled up at ports on the Pacific Coast. The transfer of the N.Y.K. boats, it is said, is to relieve the shipping congestion.

TWINE FROM FLAX STRAW.

Success Attends Efforts of Scientists to Utilize in Industry the Waste Straw of the Western Flax Crop.

For years thousands of tons of flax straw have been destroyed in Western Canada every year after the seed has been taken from it. This waste has led a small group of men to devote untiring efforts to the discovery of a process whereby this straw could be utilized. The efforts of these men are now said to have been successful, and a method of treating the flax straw so as to allow of its being spun and finally worked into the finished product is announced. Some excellent samples of binder twine, cord and rope made under the newly-discovered process from flax fibre were recently on view at Regina, Saskatchewan. They are said to be much

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It makes *them grouchy* and spoils *your* work.

That costs *you* money any way you look at it.

Give your men "Famous Five" files to work with, and you'll get good results; because "Famous Five" files are hard, sharp and retain their keen cutting qualities for the longest time.

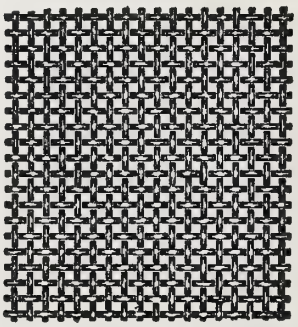
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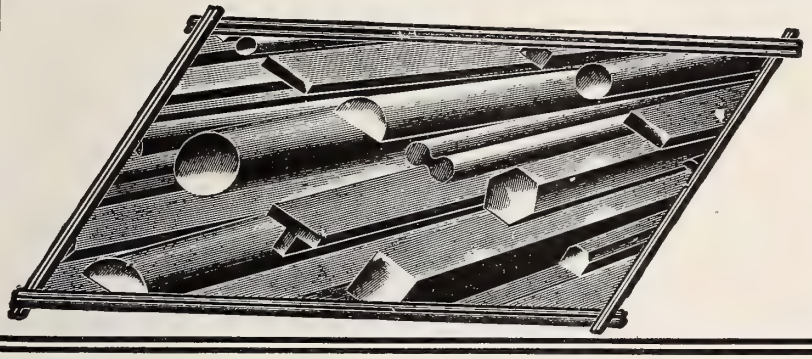
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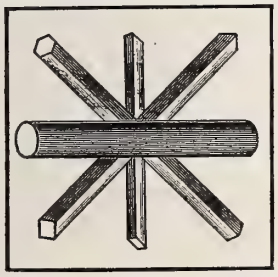
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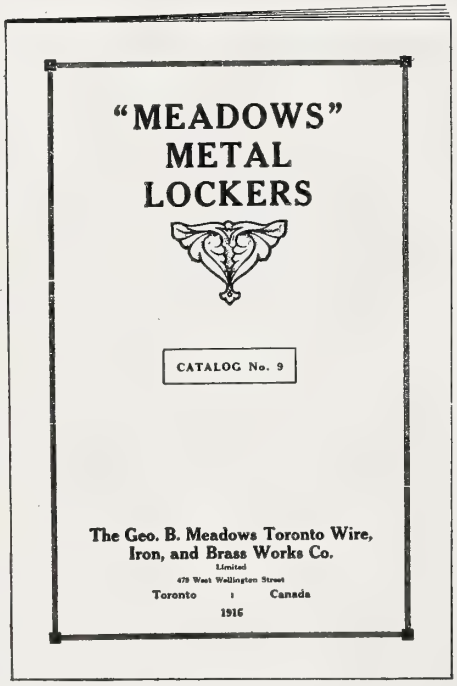
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We cannot tell you about all of them in this limited space so we would suggest that you

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stronger than material made in the ordinary way, and flax twine can be produced at half the cost of sisal twine. What is probably of more importance to the farmer, however, is the fact that he will in future derive a double revenue from his flax crop—from the fibre as well as from the seed. The cultivation of flax, already a profitable crop in Western Canada, will thus become still more profitable.

From the beginning the Department of Agriculture of Saskatchewan has taken a very keen interest in the experiments, and a small grant was made by the Government to enable the work to be carried on. The results obtained will doubtless prove of immense value, not only to the farmers of Saskatchewan, but also to the whole farming community of Canada. The success in the manufacture of twine opens new and profitable fields, which should ultimately result in the establishment of a number of large industries. As prepared by the new process, flax fibre constitutes a raw material suitable, not only for the manufacture of twine and cord, but also for the weaving of the coarser kinds of linen, twills, sack cloth, duck and other similar goods.

THOUSANDS OF MOTOR TRUCKS.

Production in the United States this Year Expected to Exceed Two Hundred Thousand.

During the calendar year of 1916 the production of motor trucks in the United States was 90,576, having a retail value of $202,250,572, states the *Michigan Manufacturer*. Up to the end of June this year, reckoning from July 1, 1916, to June 30, 1917, 112,000 trucks had been produced, having a retail value of $299,010,757. The prediction has been freely made that the production of trucks for the year 1917 will run over 200,000, with a valuation of $325,000,000 to $350,000,000. If anything, this figure will no doubt prove too small. By the tremendous expansion every leading truck company is making in its factory and the demand from all quarters which is growing by leaps and bounds, it is becoming the problem of the motor truck industry not particularly to sell the trucks, but to produce a sufficient number to meet the ever-growing demand. It is safe to assume that no matter what the production may be every truck will be taken and more wanted. Not only does this situation exist in the light truck field, the converting units and light delivery cars, but it extends through the entire range of truck production.

YESTERDAY AND TO-DAY.

Sharp Contrasts Between Conception of a Factory Thirty Years Ago and Present Time.

Certain aspects of modern factory life are curiously interesting, says the *Manufacturers' News*. Thirty years ago factories were places to house machinery, places also where men worked, but the provision made for them was often woefully meagre as compared to that made for the beasts connected therewith. The interest of the employer in the employee did not extend far beyond the financial relations existing between them, and the idea that the employer should extend his service beyond the furnishing of steady employment so as to include personal service was not widespread at the most.

But marked changes have come! The ideal factory of to-day is equipped with all things necessary to make the employee comfortable at his work. Buildings well warmed, properly lighted and carefully ventilated are becoming the rule



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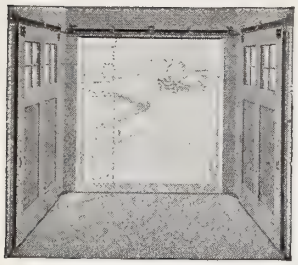


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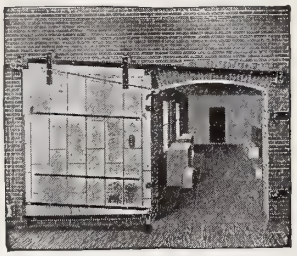
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"R-W" Trolleys are best for all sliding doors

rather than the exception. Sanitary surroundings and appliances superior to that required by law are common, and bathing facilities better than those found in most homes, are to be seen in many factories.

In former days the workman was expected to be expert and careful enough to operate any machine, no matter how dangerous, without guards or protection of any kind. Neither in the design nor installation of machinery was much attention given to the possibilities of accident to the worker. To-day the safety of the operator is considered an important matter not only by employers but by the state, and the movement for safety in the factory, and financial protection of those injured and of those depending upon them promises to be one of the most important in factory work.

In the old-fashioned times the employer felt that his financial responsibility to his employees ended with the weekly pay envelope. To-day we see them organizing and promoting mutual benefit and loan associations, purchasing clubs, insurance and pension schemes, means for securing permanent homes and many other forms of financial assistance.

CATERPILLAR TRACTOR IN FACTORIES.

Small Kind has been Designed as a Substitute for Narrow-Gauge Industrial Railways.

A small tractor of the conventional caterpillar type, designed as a substitute for the narrow-gauge industrial railroads operated in connection with large plants, has recently made its appearance, says *Popular Science*. It can move material rapidly from one department of a factory to another and pass obstacles, since it does not require roads or



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tracks for its operation. Furthermore, it does not mar the surface over which it passes, because it lays its own track as it goes along.

For this reason it can be used inside factory buildings. It can pass through doorways of the ordinary size, and when not used in transporting material from one department to another, it can be employed in the shipping-room or on the loading platform. It is but 50 inches wide and 52 inches high.

There are any number of other uses to which the industrial tractor may be put. For instance, it can be employed for pulling loaded wagons out of excavations, or it can be used in logging camps, or in lumber yards, mines and shipyards.

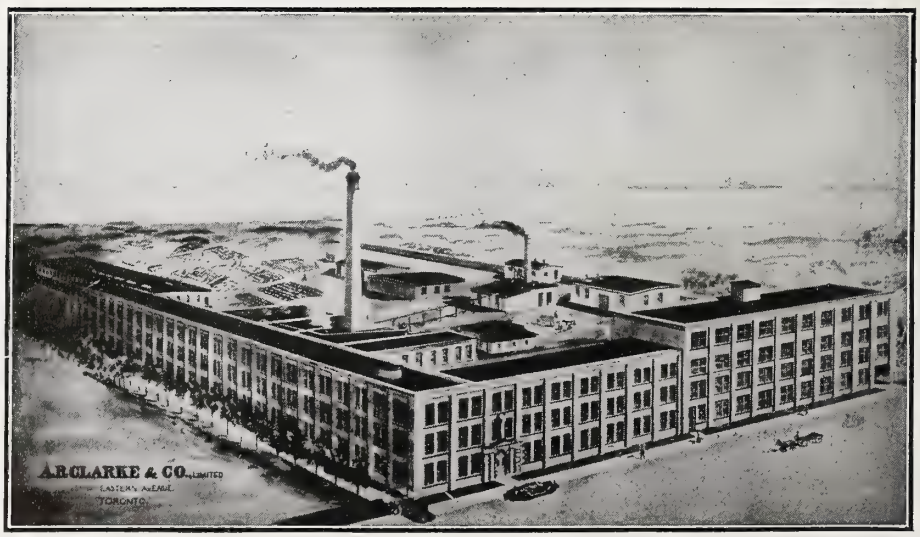
CO-OPERATIVE BUYING BY ARTISANS.

How Employees in a Toronto Factory Combine to Buy Household Supplies.

In some of the large factories in the United States, stores are maintained where the employees may secure their home supplies at cost. In a large Toronto factory a similar idea is being carried out, but in a different way. Once every week a treasurer, or steward, appointed by the men in the factory, goes round among them with an order list, and hears from each man what his weekly needs will be—so many pounds of bacon, so many dozen eggs, so many crates of berries and so on. When he gets the orders he proceeds to add the pounds of bacon, the berries, and all the items of the orders, in lists by themselves, finding the total number of eggs required, the number of sides or backs of bacon, the number of hams, etc.

Then he sends his order. One firm in a town up the line gets a wire to send in the bacon, another firm up north gets

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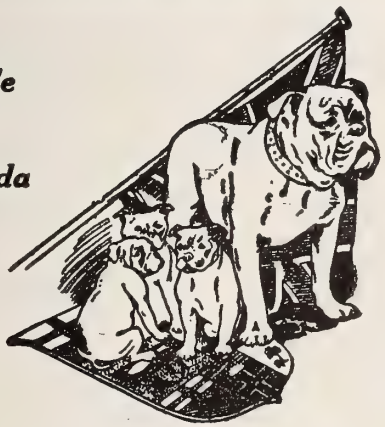
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an order for eggs, a grower in the fruit belt also gets an order for his produce, and a creamery for as many pounds of butter as will tide the employees of the Toronto firm and their families over a week's needs.

When the various consignments arrive they are divided up per specification, the money is handed over, cash on delivery, the treasurer makes out his own cheques for the amount due each consignee, and the end of the transaction is that each householder in the co-operative scheme has saved from three dollars a week up, according to the size of his family, and three, four, five and six dollars saved in a week's household expenses amounts to a tidy sum at the end of the year.

"Where does the saving come in?" Well, just in the difference between butter at thirty-one to thirty-four cents country price and at forty-five cents a pound city price. The difference between eggs at thirty-five and thirty-six cents a dozen, and fifty. Other commodities are in proportion.

A SHIPBUILDING RECORD.

Pacific Coast Province Turning Out Many Vessels, including Auxiliary Schooners and Steamers.

Fifty-one large freight vessels are on the present shipbuilding programme of British Columbia, according to the reckoning of *Industrial Progress*. This includes 14 auxiliary schooners, "Mabel Brown" type; 9 large steel steamers, 4,500 to 8,800 tons, and the new "standard" wooden steamers. Considerable progress is being made in arrangements for the construction of these wooden steamers for the British Govern-

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ment under the management of the Imperial Munitions Board. The programme of construction so far as this province is concerned calls for 27 wooden ships and this is part of a large general plan for the construction of as many vessels as possible, to be employed for general cargo carrying business, to assist in offsetting the activities of the U-boats. At the present time, at least 15 of these steamers are under construction and plans are rapidly approaching completion for laying down keels of several more.

The dimensions of the vessels are as follows: Length between perpendiculars, 250 feet; breadth extreme, 43 feet, 6 inches; depth moulded, 25 feet; depth over keel, 27 feet; draft over displacement, 22 feet; deadweight on 20 feet, maximum draft, 2,500 tons; deadweight on 21 feet, maximum, 2,800 tons. The details of hull construction, fastening, etc., are to meet in general with the approval of Lloyd's and of the Board's technical advisers. The vessels are to be built to Lloyd's requirements for "A 1" classification, and to the requirements of the British Board of Trade, as far as necessary for a cargo steamer. The machinery is to be of the single screw, triple expansion type of engine of 590 I.H.P., with two water tube boilers of Howden type.

All lumber used in the construction of these vessels is to be of Douglas fir, unless otherwise specified, but in case of yards in Eastern and Maritime provinces, the lumber may be such as can be obtained readily and is to be approved by the Board, each builder submitting for such approval a schedule of the lumber proposed to be used. Each of these vessels will require about 1,500,000 feet of lumber for its construction. The main backbone of the ship will consist of combination steel and wooden structure, formed by laying a vertical box-girder, 2 feet high by 12 inches wide, on top of a wooden keelson 24 by 20 inches, the box-girder having a foundation plate 3 feet, 3 inches by ¾ inch wide. The general construction of the steamers is very substantial, being of heavy timbers, with provision of transverse bulkheads diagonally planked.

The builders are to deliver the ships to the owners after trial, consisting of a six-hour sea run at full power, with a guarantee of workmanship and material for six months after delivery.

In addition to the considerable amount of local lumber being used in the construction of these vessels, the whole of the winches and capstans, amounting to some 150, are being built locally, and also 37 for vessels being constructed in Eastern Canada. Also a considerable quantity of bolts, bars, nuts, cleats, stanchions and fittings are being manufactured in local machine shops.

With the exception of four, the main engines will be built in Eastern Canada. It is estimated that the total value of contracts let by the Imperial Munitions Board for these 27 steamers, amounts in value to approximately ten million dollars.

THE AUTOMATIC TRUCK.

Increasing Uses to Which this Handy Contrivance Can be Put in Filling Variety of Factory Needs.

The storage battery industrial truck for intra and inter plant transportation service is rapidly coming into its own. Far-seeing manufacturers everywhere are making tests with standard types, with surprising results from the very beginning, in saving on costs, time and by speeding up production generally.

The uses to which the automatic factory truck can be put are constantly being increased as various lines of industry

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Phosphate of Soda
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Bi-Chromate of Soda
Sulphate of Alumina
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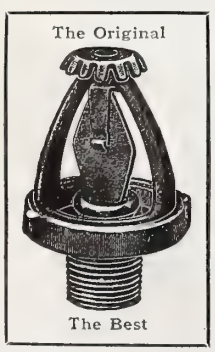
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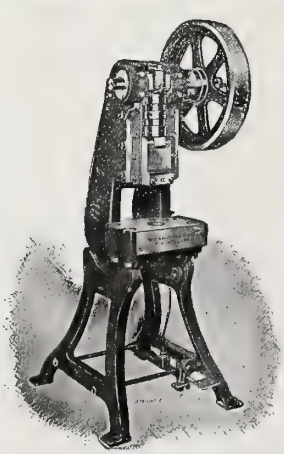
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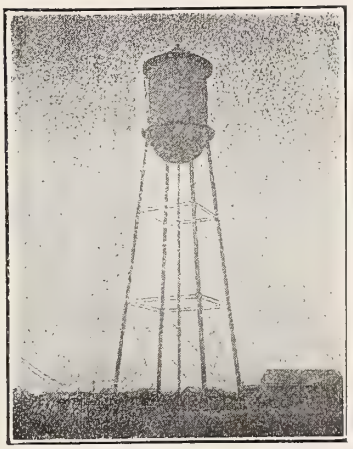
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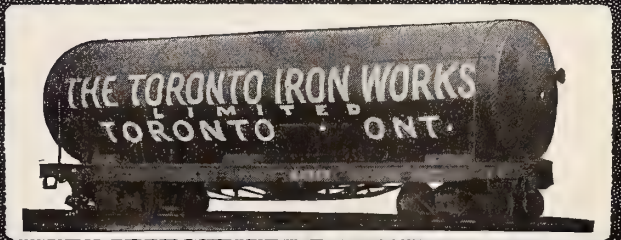
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popularity are so constructed that they can be run forward, backward and turned around in any direction in a lane through a plant or factory unit scarcely wider than their own width.

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The lifting truck makes a great bid for popularity as a saver of labor. It revolutionizes the work of intra plant transportation in such a manner that the cumbersome and sometimes dangerous systems of hand trucking are practically eliminated. It also can work so rapidly that the business of keeping it hard at work requires sometimes several gangs of men.—*Michigan Manufacturer.*

While Canada spends about four millions yearly in studying agricultural problems, only a trifling sum has been spent thus far on the study of forest problems. More than two-thirds of the whole of Canada is better adapted for tree-growing than anything else and will pay profits according to the scientific care bestowed on it.

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Load cars to full capacity.
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Insist on prompt loading and unloading.
No cars to be used as warehouses.

Take no orders less than full carload.
Have billings furnished early.
Eliminate reconsigning; bill to unloading point.

Where absolutely necessary to reconsign, do it while car is in motion.
A car-day lost is economic waste.
Remember, efficient transportation service is vital to our Army and Navy.

About nine million acres out of a total of 210 million acres in Quebec Province are under agricultural development. The chief crop of the remaining 200 million acres is and will always be timber for the reason that the soil is unfitted for tillage.

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A NEW ALLOY OF UNUSUAL PROPERTIES.

The latest thing in alloys is one of aluminum and calcium, and unusual properties are claimed for it, states the *Scientific American*. By combining about eight to ten per cent. of calcium with about ninety per cent. of aluminum, an alloy is obtained which is claimed to be lighter than aluminum itself, and to possess machining properties excelling aluminum or any of its other alloys. It is suggested as especially valuable in the metal industries, particularly in the manufacture of light castings for automobiles or airships. Such castings should have low specific gravity, good machining properties and freedom from brittleness; they should be capable of taking the finest impressions from the mold. The new alloy is said to fulfil all these conditions.

In the ordinary aluminum castings of to-day, it is necessary and customary to introduce a hardener such as copper, tin or zinc, aluminum itself being too soft to machine or cast properly. But hardeners increase the weight, tend to cause brittleness and in some cases the resulting alloys are less resistant to corrosion. The new aluminum-calcium alloy is from five to twenty per cent. lighter than aluminum or its ordinary alloys; is much harder and more resistant to corrosion, and machines easily. The calcium also acts as a purifier and prevents the formation of oxide while the castings are being made.

This alloy cannot be made by simple fusion of the mixed metals because calcium itself burns, even when heated at a low temperature. To make the alloy, calcium in small pieces is pushed under the surface of the melted aluminum and held there until melted.

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BUYERS' GUIDE TO CANADIAN MANUFACTURES

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVE MATERIALS
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.

ABRASIVES
*D. A. Brebner, Ltd., Toronto.

ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.

ACETYLENE BURNERS
*The Prest-O-Lite Company.

ACETYLENE GAS
*The Prest-O-Lite Company.

ACETYLENE GAS BURNERS
Economiq Acetylene Burner Co., Toronto.

ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.

ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.

AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.

AIR COMPRESSORS
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
*Jenckes Machine Co., Sherbrooke, P.Q.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

ALCOHOL
The St. Hyacinthe Distillery Co. Ltd., St. Hyacinthe, Que.
*Hiram Walker & Sons, Limited, Walkerville, Ont.

ALE
E. L. Drewry, Winnipeg, Man.

ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*The Steel Company of Canada, Limited, Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BEER
E. L. Drewry, Winnipeg, Man.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal. Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*Jenckes Machine Co., Sherbrooke, Que.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS
*The National Acme Mfg Co., Montreal., Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
Stone Limited, Toronto.
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

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Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

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The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

*For Display Advertisement see Index, Page 917



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*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS GOODS
*United Brass & Lead Ltd., Toronto.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
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*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.
BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
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*The General Fire Equipment Co., Limited, Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
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Standard Clay Products, Ltd., St. Johns, Que.
Toronto.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company, Toronto and Montreal.
BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Rolph & Clark, Limited, Toronto.
Lawson & Jones, Limited, London, Ont.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal. Que.
CARBIDE
*Canada Carbide Co., Ltd., Montreal. Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto
CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto
CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd.
CARBONS, flame
Canadian Carbon Co., Limited, Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
CARTONS, lithographed
Harris Lithographing Co., Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
CASTINGS, brass
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, grey iron
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
CASTINGS, malleable iron
*Galt Malleable Iron Co., Ltd., Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.
CELLBOARD
Adams Cellboard Co., Toronto, Ont
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHEMICALS
*Cosmos Chemical Co., Port Hope.
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited, Toronto
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARS
Ed. Youngheart & Co., Limited Montreal Que.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.
CLOCKS, TIME
*International Time Recording Co. of Canada, Ltd., Toronto.

CLOCKS, WATCHMEN'S
*The General Fire Equipment Co., Limited, Toronto.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.
COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.
COFFEE
S. H. Ewing & Sons, Montreal, Que.
COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.
COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.
COLLARS
The Standard Shirt Co., Limited, Montreal, Que.
COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.
COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
Rolph & Clark, Ltd., Toronto.
CONCENTRATORS
*Jenckes Machine Co., Sherbrooke, Que.
CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS, fibre tubing
*Beveridge Paper Co., Limited, Montreal.
CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTORS' PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*Jenckes Machine Co., Sherbrooke,
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

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COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CORKS
S. H. Ewing & Sons, Montreal, Que.

CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.

CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.

CORSETS
Dominion Corset Co., Quebec, Que.

COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.

COTTONADES
Hamilton Cotton Co., Hamilton, Ont.

COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.

COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

CRANES
*Northern Crane Works, Walkerville, Ont.

CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.

CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.

CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.

CREAM SEPARATORS
The Renfrew Machinery Co., Ltd., Renfrew, Ont.

CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.

CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.

CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.

CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

CUPS, presentation
Standard Silver Co., Toronto.

CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.

CURLED HAIR
*Delany and Pettit, Ltd., Toronto.

CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.

CUTLERY
Standard Silver Co., Toronto.

CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.

DENIMS
Hamilton Cotton Co., Hamilton, Ont.

DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

DESIGNERS
Ontario Engraving Co., Hamilton, Ont.

DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.

DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.

DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

DISINFECTING APPARATUS
Spramotor Co., London, Ont.

DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.

DOWELS
*Toy Products Ltd., Farm Point, P.Q.

DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.

DRESSING, belt.
Sadler & Haworth, Montreal, Que.

DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.

DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.

DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

DRILLS, rock
*Canadian Ingersoll Rand Co., Sherbrooke, Que.
*Jenckes Machine Co., Sherbrooke, Que.

DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.

DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.

DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.

DRY COLORS
P. D. Dods & Co., Ltd., Montreal, Que.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.

DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.

DYNAMITE
Canadian Explosives, Limited, Montreal, Que.

DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.

DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.

EIDERDOWN
Galt Knitting Co., Ltd., Galt.

ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.

ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.

ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.

ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.

ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.

ELECTROTYPING
Central Press Agency, Toronto.

ELECTRICAL SUPPLIES
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.

ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.

ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.

ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.

ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.

ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.

ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.

ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.

ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
Rolph & Clark, Limited, Toronto

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.

ENGRAVING
*J. L. Jones Engraving Company, Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa, Limited, Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal, Que.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited, Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.

FILING CABINETS
*Office Specialty Co., Newmarket, Ont.

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.

FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.

FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.

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FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited, Toronto, Ont.

FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.

FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.

FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.

FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.

FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.

FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.

FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.

FITTINGS, steam
Warden King, Ltd., Montreal, Que.

FLAGS
*Scythes & Co., Limited, Toronto.

FLASHLIGHTS
Canadian Carbon Co., Toronto.

FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.

FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.

FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.

FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.

FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.

FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.

FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.

FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.

FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.

FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.

FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.

FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

FURNACES, hot air
Bedford Stove Co., Bedford, Que.

FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.

FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.

FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.

FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.

FUSES
*Economy Fuse and Mfg. Co., Montreal.

GALVANIZED IRON
*A. C. Leslie & Co., Montreal.

GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.

GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.

GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.

GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.

GASOLINE
*The Imperial Oil Co., Limited, Toronto.

GAUGES
*Brown Engineering Corporation, Toronto.

GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.

GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.

GELATINE
Canada Gelatine Co., Ltd., Brantford.

GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.

GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.

GLASSWARE, cut
Roden Bros., Ltd., Toronto.

GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.

GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.

GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.

GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.

GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.

GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.

GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.

GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.

GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.

GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.

GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.

GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.

GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.

GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.

GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.

HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.

HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.

HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

HAMS
F. W. Fearman Co., Ltd., Hamilton. Ont.

HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.

HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Onto.

HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.

HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.

HARNESS
Lamontagne Ltd., Montreal, Que.

HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.

HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.

HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.

HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.

HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.

HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.

HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.

HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.

HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.

HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.

HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.

HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.

ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.

INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont.

INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.

INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.

INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.

INVERTS
Standard Clay Products, Ltd., St. Johns, Que.

IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.

IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

IRONWORK, architectural
*Canada Wire & Iron Goods Co., Hamilton, Ont.

IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.

IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.

*For Display Advertisement see Index, Page 917

JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto.
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que.
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAGER
E. L. Drewry, Winnipeg, Man.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock sole
The Breithaupt Leather Co., Ltd., Berlin, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
Rolph & Clark, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
MACHINE TOOLS
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car shop
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, tannery
W. P. Plant, Hastings, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILING
*The Pedlar People Limited, Oshawa.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People Limited, Oshawa.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
MOTOR TRUCKS
*Menard Motor Truck Co., Ltd., Windsor, Ont.
MOULDERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NICKEL OXIDE
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

*For Display Advertisement see Index, Page 917

OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.

OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.

OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.

OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.

OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.

OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.

OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.

OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.

OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.

ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.

ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.

ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.

ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.

OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.

OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.

OVERHEAD RUNWAYS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.

OXYGEN
*L'Air Liquide Society, Montreal.

PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.

PACKING BOXES
Barchard & Co., Limited, Toronto.

PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.

PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.

PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.

PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.

PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.

PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.

PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.

PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.

PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.

PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, gummed tapes
Gummed Papers, Ltd., Brampton, Ont.

PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.

PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.

PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, wall
Stauntons, Ltd., Toronto.

PAPER, Waxed
Business Systems, Ltd., Toronto.

PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.

PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, writing, high-grade
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.

PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.

PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.

PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.

PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.

PATENT LITIGATION
Ridout and Maybee, Toronto.

PAY ROLL AUDITS
*International Time Recording Co. of Canada, Ltd., Toronto.

PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.

PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.

PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.

PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.

PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.

PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.

PIANO KEYS
The Otto Higel Co., Ltd., Toronto.

PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIANO, player actions
The Otto Higel Co., Ltd., Toronto.

PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.

PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.

PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.

PINS, society, emblems and badges
Caron Bros., Montreal, Que.

PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.

PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.

PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.

PIPE AND NIPPLES, black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.

PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.

PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.

PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.

PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.

PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.

PLANERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

PLANING MILLS
G. & J. Esplen, Montreal, Que.

PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.

PLOWS
J. Fleury's Sons, Aurora, Ont.

PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.

PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.

PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.

PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.

POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.

PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.

POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.

POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.

POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.

POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.

PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.

PRESSES, baling and filter
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.

PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.

PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.

PRESSES, veneer
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.

PRINTERS
Rous & Mann, Ltd., Toronto.

PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.

PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.

PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.

PULP
*Brown Corporation, La Tuque, Que.

PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.

*For Display Advertisement see Index, Page 917

PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.

PUNCHES
*Pratt & Whitney Co., Dundas.

PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.

RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.

RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.

RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.

RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.

RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.

RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.

REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.

"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.

REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.

REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.

REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.

REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.

REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.

REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.

RINGS, gold
Caron Bros., Montreal, Que.

RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.

RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.

ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.

ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.

RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.

RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.

RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.

SALT
Canadian Salt Co., Ltd., Windsor, Ont.

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, crosscut and band
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.

SCALES
The Gurney Scale Co., Hamilton, Ont.

SCALES, counter
The Gurney Scale Co., Hamilton, Ont.

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.

SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.

SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited, Toronto.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

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SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.

STAMPINGS, METAL
*Russell Motor Car Co., Ltd., Toronto.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PEN STOCKS
*Jenckes Machine Co., Sherbrooke.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.

TANKS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TAPES, paper and cloth, gummed and ungummed
Gummed Papers, Ltd., Brampton,

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Time Recording Co. of Canada, Ltd., Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.

TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.

TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.

TRANSFORMERS
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.

TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton, Ont.

TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.

TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS
The Gurney Scale Co., Hamilton, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.

TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.

TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.

TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.

TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.

TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal, Que.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.

TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.

TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.

TUMBLERS, foundry
*Northern Crane Works, Limited. Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

TURPENTINE
*Brown Corporation, La Tuque, Que.

TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TWEEDS
Rosamond Woollen Co., Almonte, Ont.

TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd.. Toronto.

TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.

TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.

TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont

UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.

UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

UNIONS
*Dart Union Co., Ltd., Toronto, Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.

UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.

VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, regrinding globe, angle, cross checks, swing checks, etc.
Penberthy Injector Co., Ltd., Windsor, Ont.

VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.

VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt

VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.

VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.

VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

VINEGAR
The St Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

WAGONS
TudhopeAnderson Co., Ltd., Orillia, Ont.

WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.

WASHERS
*The Steel Company of Canada, Limited, Hamilton.

WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.

WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.

WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.

WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

WEBBING, elastic
Hamilton Cotton Co., Hamilton, Ont.

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WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.

WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.

WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que

Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.

WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.

WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.

WHEELS, water (impulse type)
John MacDougall Caledonian Iron Works Co., Ltd., Montreal Que.

WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.

WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.

WHISKY
*Hiram Walker & Sons, Ltd., of Canada, Ltd., Hamilton, Ont. Walkerville, Ont.

WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont

WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

WINDOW SHADES
Daly & Morin, Montreal, Que.

WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.

WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.

WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.

WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.

WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que.

WOOD PRINTERS
Barchard & Co., Ltd., Toronto.

WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.

WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

WOOL
*H. V. Andrews, Toronto.

WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.

WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada. Ltd., Niagara Falls, Ont.

WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.

WROUGHT IRON PIPE
*The Steel Compony of Canada. Ltd., Hamilton.

WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.

YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.

ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Page 917

ARE YOUR STEAM PIPES INSULATED?

IF NOT YOU ARE BURNING MONEY

A GOOD COVERING pays for itself in one Season, and is a revenue producer indefinitely. The Best is the Cheapest **WE HAVE IT**

EUREKA MINERAL WOOL & ASBESTOS COMPANY

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TRY US FOR

BRASS CASTINGS

THE BOOTH-COULTER COPPER & BRASS COMPANY, LTD.

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SOLICITORS FOR THE CANADIAN MANUFACTURERS' ASSOCIATION

Offices—Toronto General Trusts Building
59 Yonge Street

TORONTO
Canada

Featuring Peterborough's Industries

Vol. XVIII., No. 8 TORONTO, DECEMBER, 1917 $2.00 per Year

INDUSTRIAL CANADA

Our Part in Victory Bond Advertising

Has been more than usually absorbing. Has been more than usually successful, if we may believe the things said of us. It is certainly something for us to be grateful for that our long training in successful publicity should have been of some value to the country in an hour of need.

AFTER December 1st we will gladly talk over your advertising problems with you if we are asked to do so.

J. J. GIBBONS, LIMITED

Advertising Agents

MONTREAL TORONTO WINNIPEG

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.

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(AN ELECTRIC FURNACE CORUNDUM)

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DROP FORGINGS

F & S Co. Quality & Service

SHEET METAL WORK
GENERAL STAMPINGS

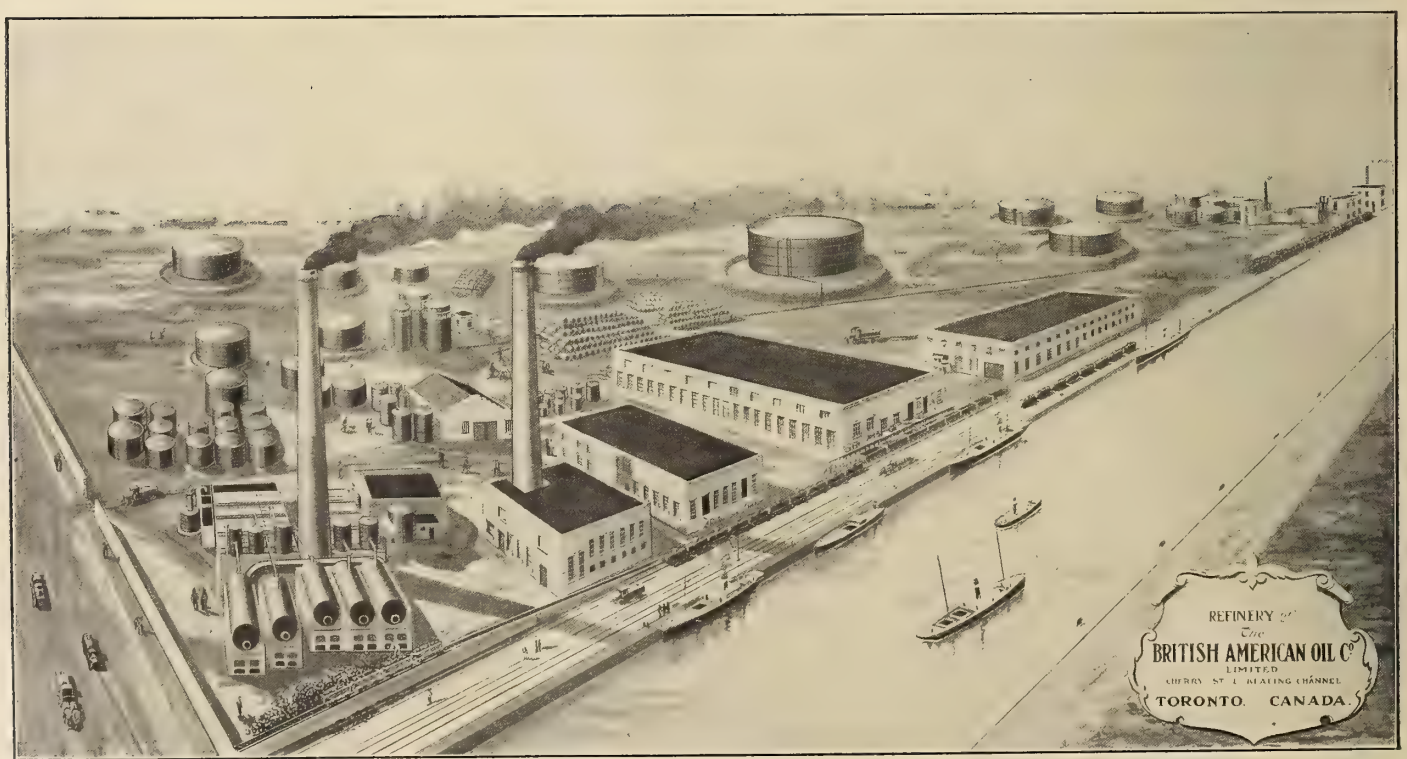
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We are equipped to handle large forging contracts.
This expansion also increases our stamping facilities.
We stand by our Motto: Quality and Service.

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Walkerville - Ontario

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As it's the nature of iron TO rust
It's the nature of bronze NOT to rust

The bronze to bronze joint in Dart union pipe couplings cannot rust. That's why they make a lasting connection and are, by far, the cheapest pipe coupling in the long run.

Your Jobber Sells Dart Unions

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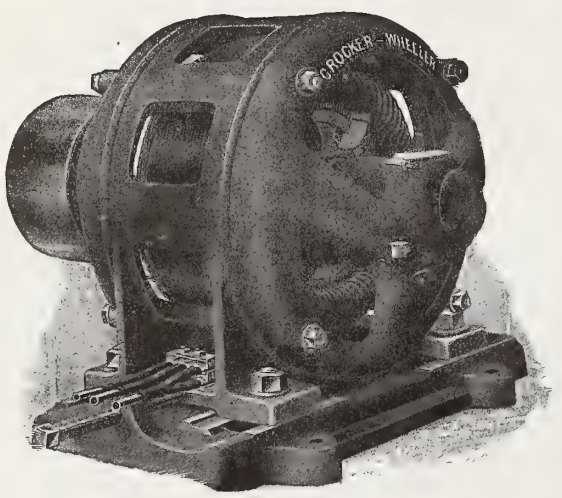
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CROCKER-WHEELER INDUCTION MOTORS

INCLUDES:

Heavy Shafts

Large Journals

High Power Factor

Excellent Efficiency

They have many other desirable features; Bulletin 155 describes them.

THE CANADIAN CROCKER-WHEELER CO., Limited

MANUFACTURERS AND ELECTRICAL ENGINEERS

Head Office and Works: St. Catharines **District Offices: Montreal, Toronto, Vancouver**

Don't walk—don't wait—

GET YOUR MAN, INSTANTLY, ON THE

PRESTO-PHONE

The Canadian Automatic

When a business concern grows beyond the "one-horse" stage, some method by which all persons on the premises may quickly communicate with one another becomes essential. And it is to meet this universal need of the modern office and factory that the Presto-Phone Automatic Telephone System has been designed. No switchboard operator is required. Outside lines are not interfered with. The firm that instals it owns it—because it is **sold, not rented.**

Save your own time and the time of your responsible employees by installing a Canadian Automatic System, and get service and save money.

Write for Descriptive Booklet.



The Presto-Phone—the Canadian Automatic that requires no Switchboard operator

Canadian Independent Telephone Co., Limited

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Under present war conditions every pound of coal saved means that much more for the use of our important industries.

Another side to the question is the fact of the high and soaring price of coal.

Coal at present prices is an item to be reckoned with.

TO SAVE COAL USE The DUNHAM SYSTEM OF HEATING

By the application of Dunham Radiator Traps to your heating plant the necessity of carrying high steam pressures for heating is done away with, and the use of all exhaust or **waste** steam assured.



The DUNHAM Radiator Trap

This device is one of the fundamentals of the Dunham System of Heating. It is known the world over to heating engineers as the device that revolutionized Vacuum steam heating. Leading architects everywhere use it.

If through shortage of electric power, you are adding steam units, save all exhaust steam through use of Dunham Heating.

A flexible system of heating giving mild, quick, even heat is the result.

Dunham Heating is simple in operation and easily controlled.

There is a Dunham System of Heating for every class of building.

Dunham Service enables you to get the heating best adapted to your needs.

May we show you the application of Dunham Heating to your plant? A postal to-day.

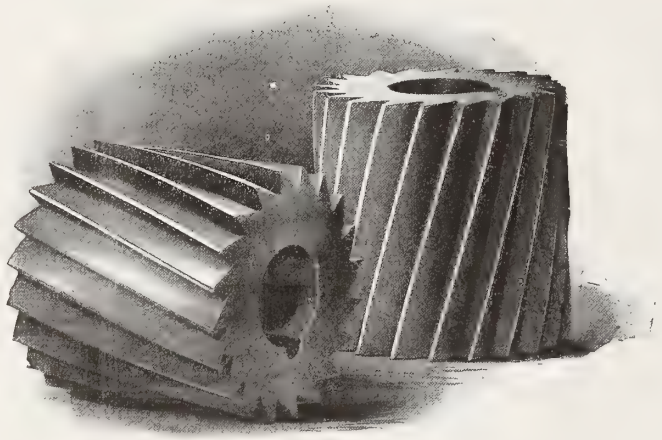
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Halifax Montreal Ottawa Winnipeg Vancouver Calgary

SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

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of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

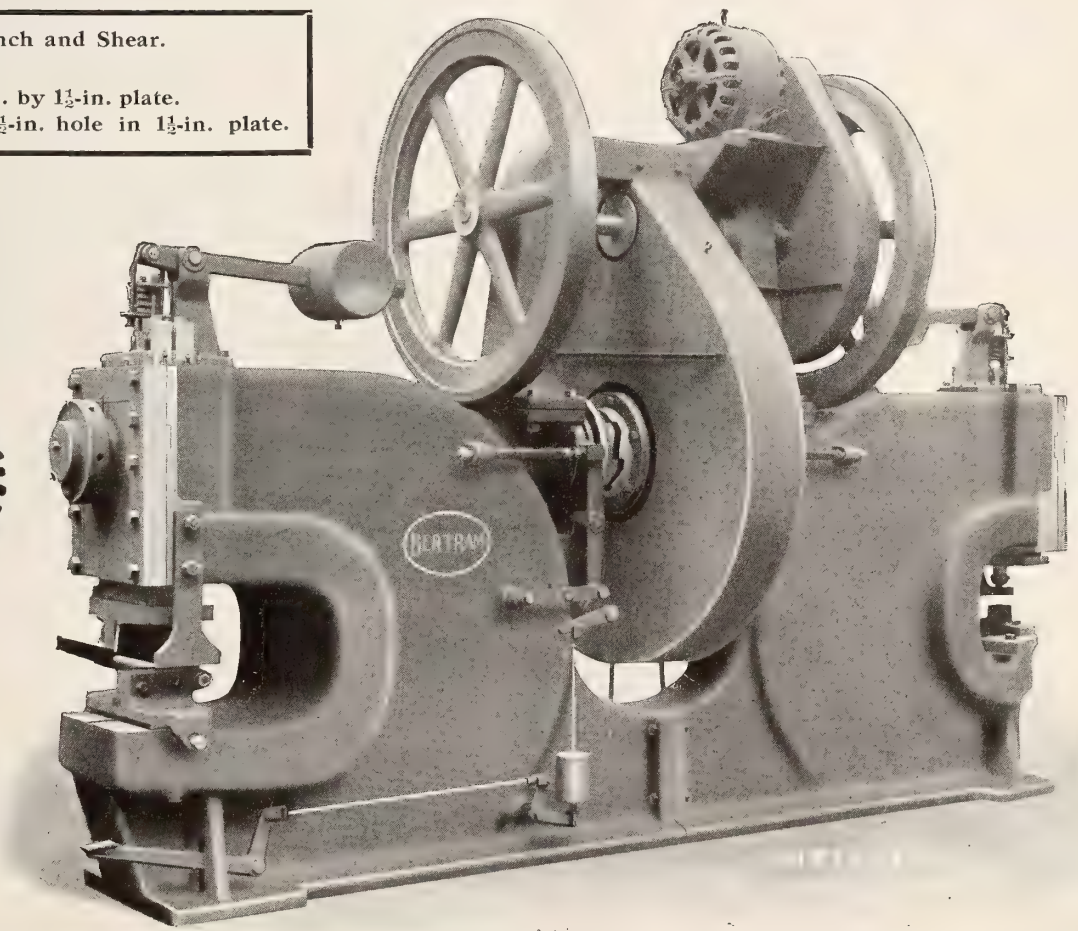
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

Dundas - Ontario - Canada

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.



"Beaver Brand" Metals—Quality

OUR PRODUCTS:

Sheet Metals—Brass, Bronze, Gilding, Canada Silver, Phosphor Bronze, Muntz and Naval Metal, in Sheets, Rolls, Plates and Coils.

Brass, Bronze, Phosphor Bronze, Naval and Muntz Metal Rods, in every variety of shape.

Special Alloys to Meet Your Minutest Requirements

Our Products at Lowest Prices, Combined with

Quality and Service

Merit your Immediate Consideration.

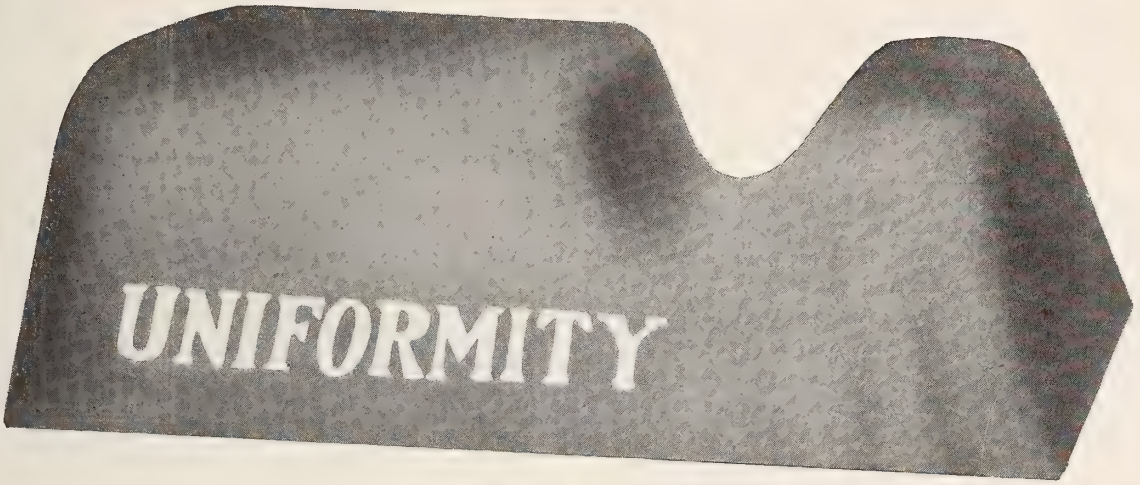
Brown's Copper & Brass Rolling Mills,
LIMITED

General Offices and Mills, New Toronto, Ont.

INGOTS

Brass, Bronze and Composition

Any Alloy According to Your Formula



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INGOT-COPPER

99.9% PURE

For High-Grade Castings

Wire or Write for Prices

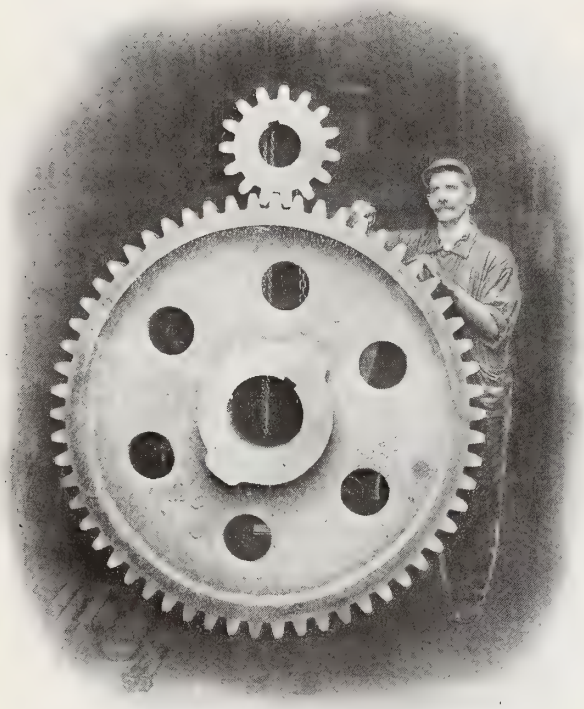
We are Purchasers of Copper-Bearing Material

BROWN'S COPPER & BRASS ROLLING MILLS LIMITED

NEW TORONTO (*Near Toronto*), CANADA

CUT GEARS

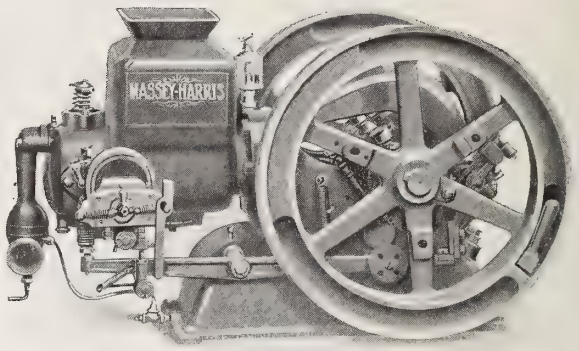




Complete and modern equipment for cutting large or small gears of all types.

Let our Engineering Dept. help you solve your gear problems.

Hamilton Gear & Machine Co.
Van Horne Street TORONTO



MASSEY-HARRIS GASOLINE ENGINES

IN choosing an Engine, great care should be exercised. It is in use the year round, and for many years. The cost of operation and upkeep should be considered ahead of the first cost, bearing in mind that an Engine which is cheap only in the matter of price, is pretty certain to be an expensive proposition in the long run, with high fuel consumption, big repair bills and unsatisfactory service.

The Massey-Harris Engine is Famous for Reliability and Economy of Operation. It can be depended on the year round in any kind of weather, and the cost of maintenance is very low—it is easy on the gasoline and will be found exceptionally durable.

When you buy a Massey-Harris Engine, you buy more than an Engine—you buy years of satisfactory service — power when you want it and at a very low cost per horsepower. Stationary or portable, 2 to 15 horsepower.

MASSEY-HARRIS CO., Limited

Head Offices—Toronto, Canada

—Canadian Branches at—

Montreal Moncton Winnipeg Regina Saskatoon
Swift Current Yorkton Calgary Edmonton

AGENCIES EVERYWHERE

The Centre

OF CANADA'S POPULATION
IS AT

Peterborough, Ontario

Almost exactly one-half of the population of the Dominion is west and the other half east of Peterborough — and it is a strategic point of great advantage from which to ship.

IT IS ALSO:

An Electric Power Centre

From powers on the rivers within the city and connecting waters hydro-electric power is furnished by the city at cost, and the cost rate is the lowest that can be obtained anywhere. Several developments furnish the power and interruptions are practically impossible.

Transportation Facilities

Situated between the two great centres, Montreal and Toronto, Peterborough has direct railway connections with them by the Canadian Pacific and Grand Trunk Railways, and is also on the direct lines of both these railways to the Georgian Bay and the Northwest. The Trent Waterway, the shortest water route from West to East, passes through the city.

Sites and Buildings

Excellent sites are obtainable, including a block of sites held by the city for industrial purposes. Buildings are also available, including one of 60,000 square feet of floor space.

Labour Conditions

Peterborough has the attractions and conveniences of a city—mechanics like to live here. It is a city of mechanic-owned houses, and no labour troubles. Expenses are lower than in larger centres and labour is less expensive.

Essentials and Accessories

Peterborough has all the essentials and accessories of a manufacturing centre to a high degree. United States, European and Canadian industries have prospered and are prospering here. Every factory has been enlarged again and again. A Chicago company is now completing a $1,500,000 plant.

It is the policy of the city to encourage and facilitate the location of industries.

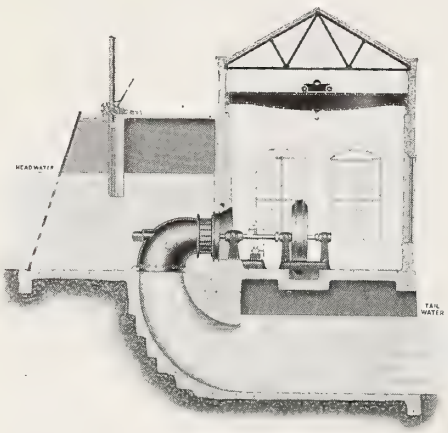
Enquiries Promptly Answered
Information Cheerfully Given
Write or Telegraph or Call Up

S. R. ARMSTRONG

City Clerk **Peterborough, Canada**

WILLIAM HAMILTON CO., Limited

Engineers and Machinists

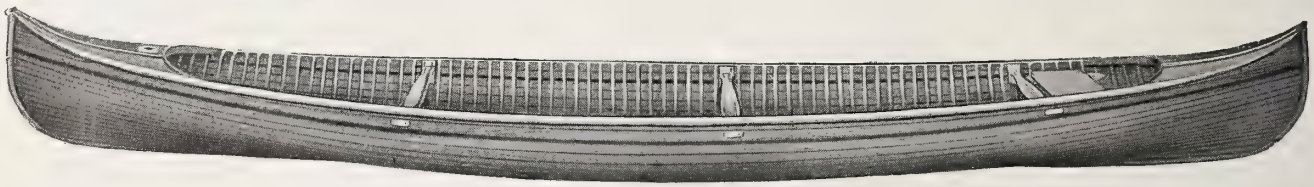


MANUFACTURERS OF

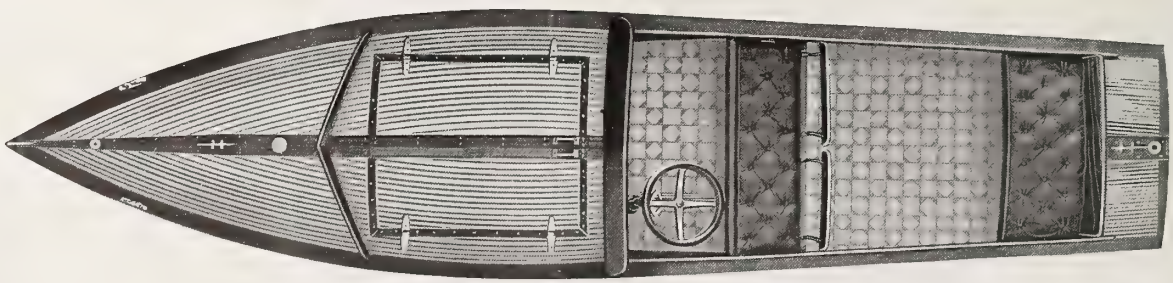
High-Grade Saw Mill Machinery
Pulp Mill Machinery and
Turbine Water Wheels

PETERBOROUGH, ONTARIO

PETERBOROUGH CANOES



WE MAKE HIGH-GRADE WATER CRAFT OF EVERY DESCRIPTION
CANOES, SKIFFS, SAILING DINGHYS AND MOTOR BOATS.



Let us send our illustrated catalogues.

The Peterborough Canoe Co., Limited
PETERBOROUGH, CANADA



Quarter Century of Progress.

The Canadian General Electric Co., Limited, was organized in September, 1892—just a quarter of a century ago.

It had its origin in a syndicate of ten citizens of Toronto formed five years previously with a capital of $10,000 to inquire into the feasibility of establishing, in Toronto, electric light and power by means of underground wires.

The Company has now a paid-up capital of $10,000,000.00, a surplus of over $4,000,000.00, and assets over $25,000,000.00.

It owns 10 manufacturing establishments shown above, a large Head Office and 7 Branch Office buildings, and has 5,000 to 6,000 employees.

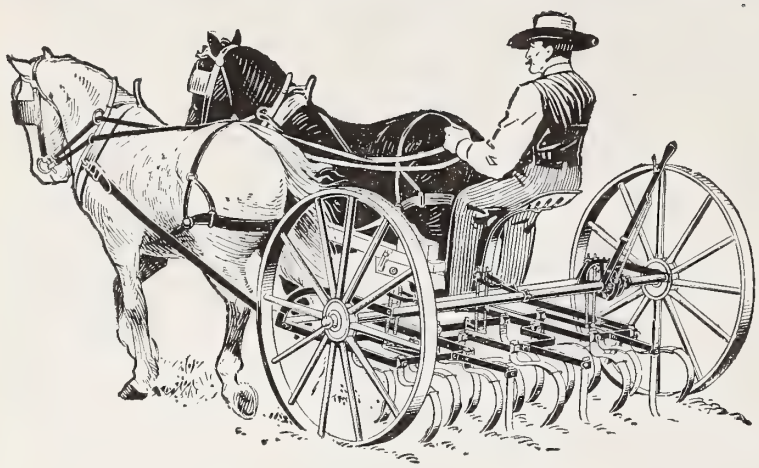
The Canadian General Electric Co., Limited, manufactures Electrical Apparatus and Supplies for Railway, Light and Power purposes.

The Canadian Allis-Chalmers, Limited, a subsidiary company, manufactures Locomotives, Structural Steel, Cast-Iron Pipe and Power Plant Equipment, Mining, Crushing, Hydraulic and Milling Machinery.

By reason of its numerous factories and great manufacturing facilities, the company was able to take an early and leading part in the manufacture of Munitions of War, and recently obtained from the British Government an order for 4 Steel Steamships of 3,500 tons each.

This, briefly, is the record of a Quarter Century of Progress.

CANADIAN GENERAL ELECTRIC CO. LIMITED
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Peter Hamilton Farm Implements

have a record of efficiency and satisfaction excelled by none. They "stand up" under the most severe conditions.

MOWERS, RAKES, DRILLS, CULTIVATORS
HARROWS, PLOWS
ROOT-PULPERS FEED CUTTERS, Etc.

The Peter Hamilton Company, Limited
Peterborough, Ontario, Canada



ARMY SHOE MUNSON LAST

A New Modern Shoe Plant

With a brand new equipment from power plant to shipping room we are turning out the choicest lines of Saleable Footwear in

MEN'S, YOUTHS' AND BOYS' HEAVY AND MEDIUM STAPLES.

Dealers will do well to see our Samples, which are now Ready for Inspection.

WE ALSO MANUFACTURE A COMPLETE LINE OF SADDLERY.

Inquire about our shoe made on the Army Shoe Munson Last.

B. F. ACKERMAN, SON & CO., LIMITED
PETERBORO, - - ONTARIO
WESTERN BRANCH: REGINA, SASK.

DE LAVAL
SPECIAL
CENTRIFUGALS

Applying centrifugal force to bring about an almost instantaneous separation or sedimentation of liquids or liquids and solids, having different specific gravities

De Laval Centrifugals are successfully used for

Removing flucculent matter from varnishes, shellac, veneers, lacquers, enamels, printing and lithographing inks, etc.
Removing sediment, cloud and moisture from flavoring extracts, perfumes and toilet waters.
Recovering juices and oils from lemons, oranges, pineapples, etc.
Removing sediment or flock and moisture from edible oils.
Removing instantaneously and completely yeast cells from wort.
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Clarifying casein and removing the dirty and unsoluble matter.
Clarifying and reclaiming used cutting and lubricating oils.
Purifying gasoline in dry cleaning plants.
Removing sediment and inherent moisture from linseed oil, and for many other uses.

Following are some users of De Laval Special Centrifugals in Canada

Ford Motor Company of Canada, Ford, Ont.
Standard Paint and Varnish Company, Windsor, Ont.
Ault & Wiborg Company, Toronto, Ont.
International Varnish Co., Toronto, Ont.
Shuttleworth Chemical Company, Toronto, Ont.
Frostt Chemical Company, Montreal, Que.
A. Ramsay & Sons, Montreal, Que.
Jamieson Varnish Company, Montreal, Que.
Sherwin-Williams Paint Co., Montreal, Que.
Holland Varnish Co., Montreal, Que.
British-American Paint Co., Victoria, B.C.
Glidden Varnish Co., Toronto, Ont.
Berry Brothers, Walkerville, Ont.

De Laval Centrifugal Pumps

We are offering a complete line of these well-known pumps in various types and sizes, either belt or direct-connected motor driven for handling oils and liquids of various kinds, and the larger sizes for use in mining operations, excavation and foundation work, or for any purpose commanding pumps of high efficiency and reliability.

Write for Special Information

THE DE LAVAL COMPANY LTD.

Head Office and Works:

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MONTREAL WINNIPEG VANCOUVER

Cable Address "BONWORTH" Long Distance Telephone

The Bonner-Worth Co.
LIMITED

Worsted Yarn Spinners and Dyers

WEAVING, KNITTING AND DOMESTIC

BONWORTH MADE IN CANADA BRAND TRADE MARK

Peterborough
ONTARIO
CANADA

THE BONNER WORTH COMPANY LIMITED MADE IN CANADA EXAMINE THE YARN

Matthews Blackwell, Limited

Pork Packers Established 1878 **Peterborough, Ont.**

As Peterborough Grew
Our Production Grew

ROSE BRAND Hams, Bacon, Lard
ANCHOR BRAND Hams, Bacon, Lard
Butter, Eggs, Cheese

Plants at TORONTO, MONTREAL, HULL, BRANTFORD

The "Canadian" Canoe Co., Limited

216 Rink Street
Peterborough, Ontario, Canada

MANUFACTURERS OF

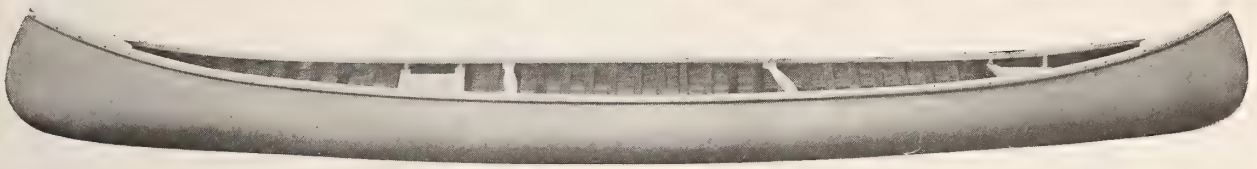
High-Grade Canvas Covered Canoes

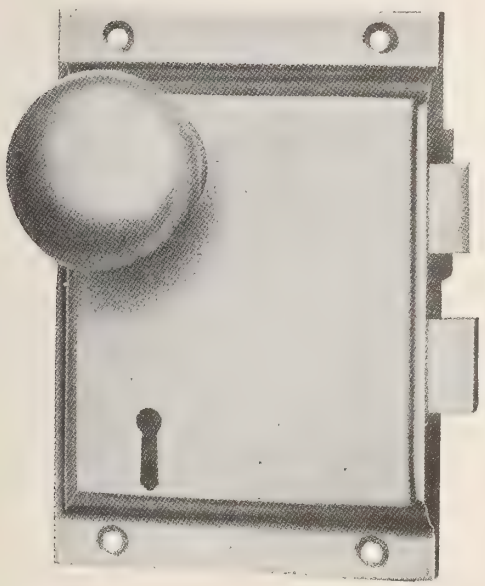
Wooden Canoes and Skiffs

ALSO

Outboard Motor Skiffs







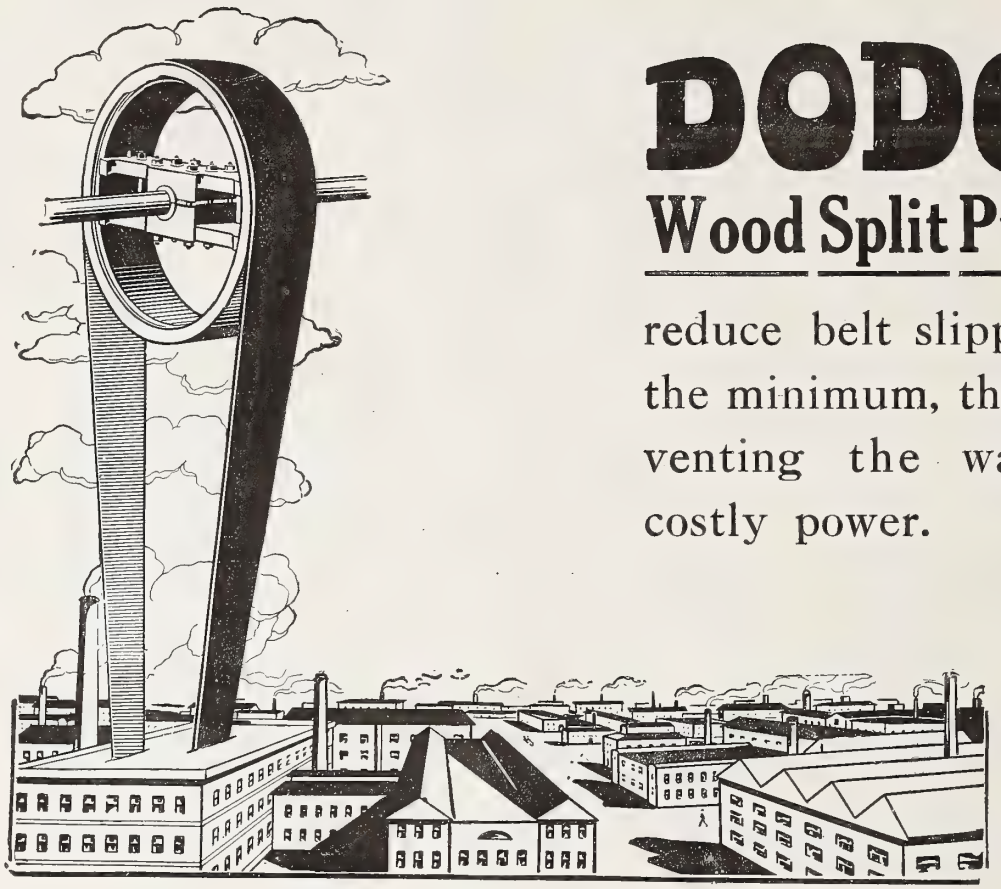
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Give Universal Satisfaction

Prompt Shipments can be Made.

THE PETERBORO LOCK MFG. CO., LIMITED

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DODGE
Wood Split Pulleys

reduce belt slippage to the minimum, thus preventing the waste of costly power.

IF your engines develop ten thousand horse power, and deliver that to a line shaft, doesn't it hurt you to feel that any waste occurs between shaft and machine?

Dodge Wood Split Pulley reduces such power waste to the minimum. This is not mere statement, it is demonstrated fact

Write for the Booklet
"A Scientific Test"

Dodge Manufacturing Co., Limited

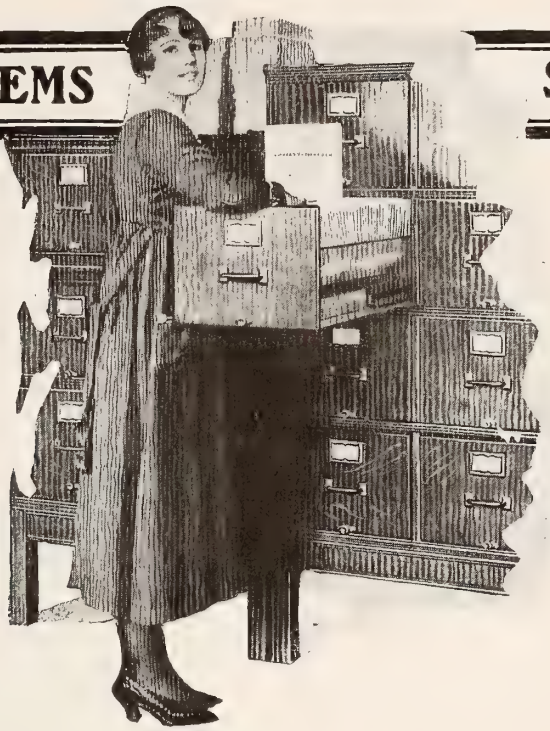
Canada's Greatest Pulley Makers

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FILING SYSTEMS SIMPLIFY



YOU wouldn't think of putting money into silverplate for that haven of comfort—your home, unless you saw the identifying mark of its worth, The Hallmark, stamped plainly on it, would you?

Why not, then let the same means of quality identification—the "Office Specialty" mark—guide you in purchasing Filing Equipment and Filing Systems for the scene of your workaday activities—your office.

For just as the universal Hallmark signifies the genuineness and worth of silver-plate, so too the mark "Office Specialty" stands for all that is good in Filing Equipment and Filing Systems for the modern business office.

WHAT "OFFICE SPECIALTY" SERVICE IS

There are 9 "Office Specialty" Filing Equipment Stores spread over the Dominion. There are "Office Specialty" representatives in every important business centre in Canada. This guarantees to you a satisfying, personal-touch service all the time.

"Office Specialty" representatives are experts on Office and Filing Systems. Back of them is a Research Bureau with filed records of investigations of thousands of filing systems for every kind of business.

The summarized result of these investigations is offered to you gratis—the services of our Research Bureau are at your disposal at all times in developing the one best office and filing system for your business. Filing Equipment Stores located at: Toronto, Montreal, Ottawa, Halifax, Hamilton, Winnipeg, Regina, Edmonton, Vancouver.

THE OFFICE SPECIALTY MFG. CO. LIMITED NEWMARKET, CANADA

No. 867

THE BROWN BROTHERS LIMITED

Simcoe and Pearl Sts. TORONTO



MANUFACTURERS OF

ACCOUNT BOOKS, LOOSE LEAF LEDGERS

Binders and Specialties

LEATHER GOODS—DIARIES—STATIONERY

Printers' and Bookbinders' Supplies

Made in Canada

Canadian Manufacturers using the best kind of Stationery specify

Rolland's Papers

Ask your Printer to show you our selection of Bond, Writing and Ledger Papers. There is a line for every use, each one being the best in its class.

WE RECOMMEND

Superfine Linen Record

for your correspondence stationery.

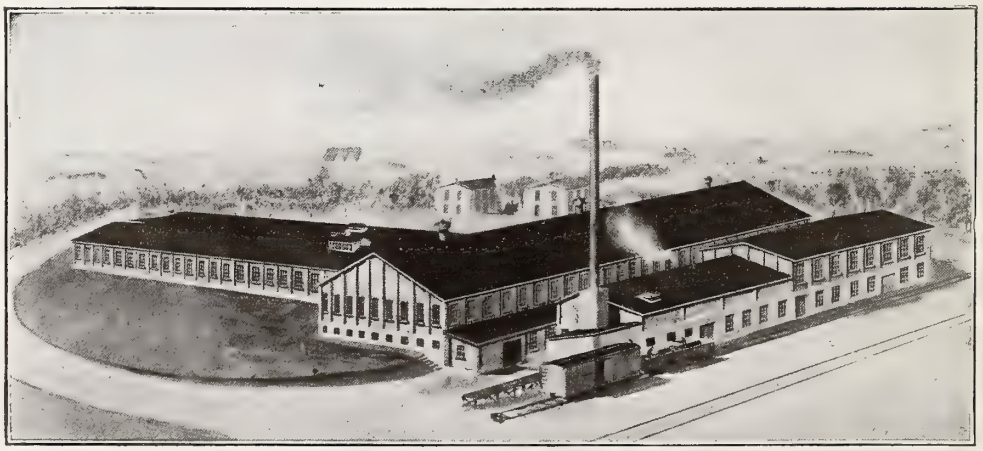
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HIGH-GRADE PAPER MAKERS

General Offices : 142 St Paul St. West Montreal, P.Q.

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Coating Mill, Barber Division, Georgetown, Ont.

The Largest and Best Equipped Mill in Canada for the Coating of Paper.

"Maple Leaf" "Beaver" "C.A." Coated

Insist on these Brands being used in your Catalogue

PROVINCIAL PAPER MILLS CO., Limited

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THE POPULAR PAPER

Bell-Fast Bond & Bell-Fast Ledger Paper

Has Gained This Prestige By Comparison

ASK YOUR PRINTER TO GIVE YOU SAMPLES AND PRICES OF BELL-FAST BOND & BELL-FAST LEDGER PAPER AND COMPARE WITH OTHER PAPERS

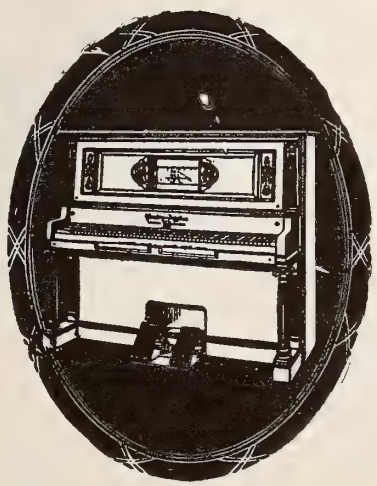
THIS WATERMARK MADE IN CANADA GUARANTEES QUALITY

We have an exceptional booklet proving the popularity of Bell-Fast Bond and Bell-Fast Ledger Paper, a copy of which we will gladly send you on request.

Howard Smith Paper Mills, Limited, Montreal

Men forget business cares in the enjoyment of

Gourlay-Angelus
Player-Pianos



A GOURLAY-ANGELUS provides ANYONE with the ability to play ANY music artistically.

In the opportunity for recreation thus afforded, many busy men find enjoyment hitherto undreamed of, as well as a complete rest from the business worries and cares of the day. If you find it hard to leave these cares behind you when you go home, depend upon it, a Gourlay-Angelus will make you forget them.

One Toronto manufacturer tells of this pleasure in a Gourlay-Angelus as follows:—"I have always been glad I purchased the Gourlay-Angelus. The longer I have it the more I enjoy it and the more I use it."

Write for Catalogue and Prices

GOURLAY, WINTER & LEEMING,
188 Yonge St., Toronto

BANK OF MONTREAL

Established 100 Years (1817-1917)

Capital Paid Up - -	$16,000,000
Rest - - - - -	16,000,000
Undivided Profits - -	1,664,893
Total Assets - - -	$403,980,236

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SIR JOHN AIRD, General Manager — H. V. F. JONES, Ass't General Manager

CAPITAL PAID-UP, $15,000,000
RESERVE FUND, $13,500,000

Extension of Canadian Trade

The Bank will make enquiries into the possibilities and requirements of markets abroad for exporters or importers who desire to extend their trade with British colonies or possessions. Owing to the large number of its correspondents and agents it has unusual facilities for this work.

S.57

THE ROYAL BANK OF CANADA

Incorporated 1869

Capital Authorized.....$25,000,000
Capital Paid Up $12,911,700
Reserve & Undivided Profits..$14,324,000
Total Assets.....$295,000,000

HEAD OFFICE, MONTREAL

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Branches in every Province of the Dominion of Canada and in Newfoundland; in Havana and throughout Cuba, Porto Rico, Dominican Republic, Costa Rica and Venezuela; Antigua, St. John's; Bahamas, Nassau; Barbados, Bridgetown; Dominica, Roseau; Grenada, St. George's; Jamaica, Kingston; St. Kitts, Basseterre; Trinidad, Port of Spain, San Fernando; British Guiana, Georgetown, New Amsterdam; British Honduras, Belize.

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NEW YORK AGENCY—Corner William and Cedar Sts.

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ESTABLISHED 1875

IMPERIAL BANK
· OF CANADA ·

CAPITAL PAID UP $7,000,000 — **RESERVE FUND $7,000,000**

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The Bank offers a service of the highest order to Canadian manufacturers because of its 128 Branches located in important industrial and agricultural centres throughout Canada.

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DRAFTS—Money Orders and Letters of Credit issued, available throughout the world.

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Accounts of Merchants and Manufacturers solicited.

HEAD OFFICE - TORONTO

UNION BANK
OF CANADA

Established 1865 Head Office, Winnipeg

Paid-up Capital.....$5,000,000 Reserve Fund.....$3,400,000
Total Assets over.....$120,000,000

FACILITIES FOR HOME AND FOREIGN TRADE

With over 305 Branches in Canada, from Halifax to Prince Rupert, the Union Bank of Canada offers excellent facilities for the transaction of every phase of modern banking business.

In connection with export trade, attention is particularly drawn to the advantages offered by the Foreign Exchange Department of our London (England), New York and Montreal Offices, and Manufacturers and Exporters are invited to avail themselves of the Commercial Information Bureaus established at these Branches.

NEW YORK AGENCY: 49 WALL ST., NEW YORK CITY---GEO. WILSON, Agent.

Established in 1836. Incorporated by Royal Charter in 1840.

THE BANK OF BRITISH NORTH AMERICA

Paid-up Capital - $4,866,666
Reserve Fund - $3,017,333

Statement to the Dominion Government (Condensed), 31st October, 1917.

LIABILITIES TO THE PUBLIC.

Notes in Circulation	$ 6,270,5 4
Deposits	58,688,908
Other Liabilities	806,998
	$65,766,480

ASSETS.

Cash on Hand and in Banks	$16,051,155
Deposit with Government o/a Note Circulation	245,822
Government, Municipal and other Securities	12,868,715
Call and Short Loans	7,367,455
Current Loans and Discounts and other Assets	36,977,862
Bank Premises	2,362,299
	$75,873,308

Riordon Pulp & Paper Company, Limited
Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS
CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72 INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

The Merchants Bank
of Canada

Head Office - MONTREAL

Paid-Up Capital - -	$7,000,000
Reserve Funds - -	7,421,292
Total Deposits - -	92,102,072
Total Assets - - -	121,130,558

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Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

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The Bank of Nova Scotia
ESTABLISHED 1832

Capital.....	$6,500,000
Reserve Fund	12,000,000
Total Assets	Over 110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
A. W. HOLMES, Toronto
ROBT. HUNGERFORD, Toronto
FRED KELLOND, Hamilton
S. J. MALLION, Stratford
MRS. A. BROWN-REDDICK, Toronto
H. J. TUTT, Toronto

Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent. Phone Main 5800

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works.
D. M. MEDCALF, Chief Inspector of Steam Boilers.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant witnout a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways.
W. C. McGHIE, Chairman of Board.
W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849

BRADSTREET'S

Capital and Surplus - - $1,500,000

Offices Throughout the Civilized World

Executive Offices: Nos. 346 and 348 BROADWAY, N.Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

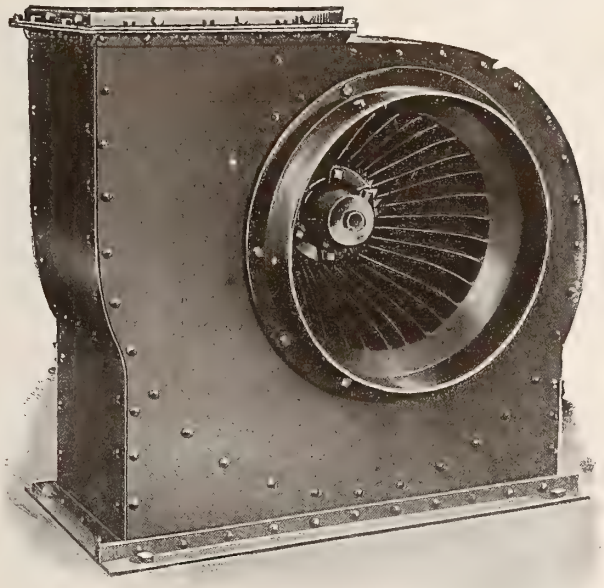
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St. John, N.B. Winnipeg, Man. Calgary, Alta. Victoria, B.C. Sydney, N.S.

THOS. C. IRVING, Gen. Man. Western Canada, Toronto



Keith Fans

For Heating and Ventilating

When it comes to a question of Heating and Ventilating the Factory, Church, School or Public Building, it is imperative that you should select the best and most approved system. The **"Keith" Fan** is specially distinguished for giving greater volume with less power than any other Fan made. Get our Keith Fan Catalogue No. 55 and judge for yourself.

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Messrs. ROBERT HAMILTON & CO., LIMITED, Bank of Ottawa Building, Vancouver, B.C.

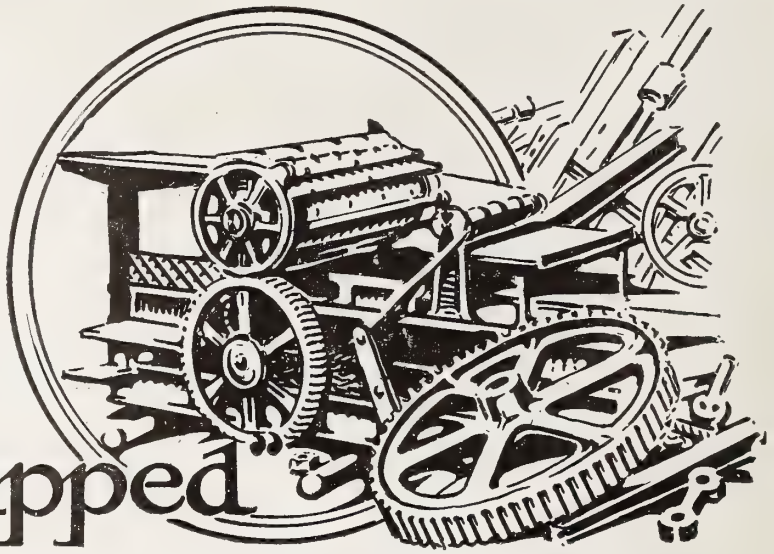


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We Specialize on Cans or Boxes required for Customer's Exclusive use
Practically Nothing Else made in our Entire Plant
This Ensures Undivided Attention to Your Particular Order

PLAIN OR DECORATED TIN BOXES AND SIGNS

Out-of-date machinery, time-worn methods, inefficient systems, have no place in modern business. Competition demands that they be scrapped.



"Scrapped"

IT is an established practice to-day in manufacturing to discard or "scrap" comparatively good machinery, if it is found that a newer machine will accomplish better results more economically. Competition demands it. The cost of the new machine, however, is a good investment. It saves its price many times over in reducing labor, saving time and money, in addition to producing a product of better quality.

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Extend the same practice throughout your establishment.

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"Scrap" the time-worn method of handling business records by means of padded forms, duplicating books, loose sheets and carbons. It is inefficient, costly, and unnecessary.

The "Shouperior" System of Autographic Registers, for executing all kinds of business records, wherever they are required in multiple sets, is more efficient. It not only offers greater speed, convenience and economy, but ensures absolute protection of records.

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The "Shouperior" System can be adopted for use in any line of business. By manufacturers, wholesalers, or retailers.

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Various sizes and styles of registers are made which will produce at a single writing from two to a dozen legible copies of the original entry made by either pen, pencil, or typewriter. Assembling of forms, blanks, carbon paper, etc., is entirely eliminated—the execution of one set of forms automatically preparing the next set, carbon paper and all. In fact, all detail is eliminated except the actual writing itself.



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Autographic Registers
A System for Executing Business Records

Send us Samples of the printed forms for the system you are now employing. We will gladly submit for your approval a plan of operation by means of the "Shouperior" System. This will place you under no obligation. Drop us a line to-day. Literature upon request.

Autographic Register Company of Canada, Limited
ESTABLISHED 1883
Head Office and Factory: 10 St. Peter Street, Montreal, Que.
Branches: LUMSDEN BLDG., TORONTO. SOMERSET BLDG., WINNIPEG

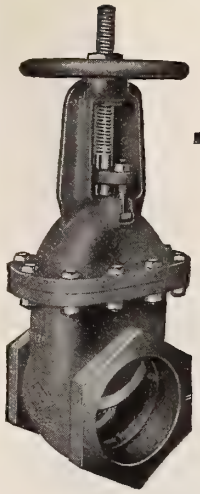


Fig. 403



Factory of Jenkins Bros., Limited
Montreal, Canada



Fig. 409

JENKINS BROS.' Type "K" Iron Body Gate Valves

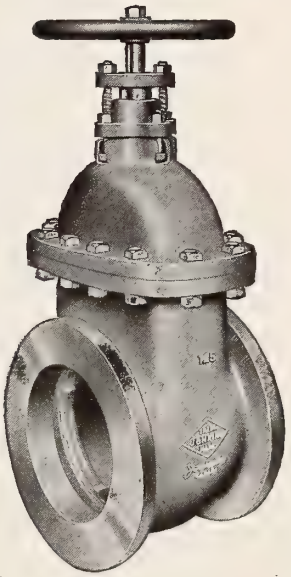


Fig. 402

THE ENGINEER who specifies JENKINS BROS.' TYPE "K" GATE VALVES does so with the conviction that his judgment is sound. Thousands of Engineers have been and still are specifying and using these Valves—and thousands of plant owners have been and continue to be satisfied with the service rendered.

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Jenkins Bros

European Branch :
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London, E.C. 4, England

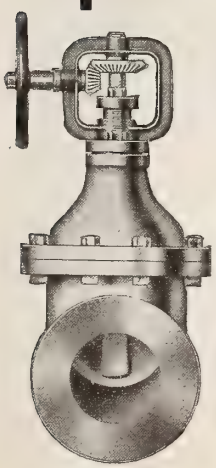


Fig. 411

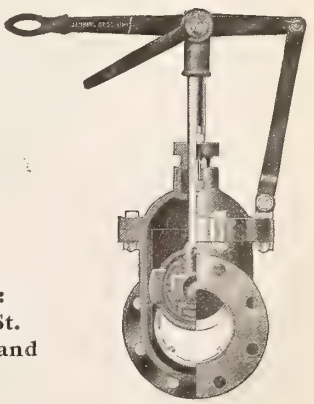


Fig. 408

Agencies in All the Principal Countries of the World.

"STELLITE" IN FRANCE

The Fonderie des Gobelins, Paris, France, has increased its daily production of 155 mm. shells from 120 when high-speed steel was used to 200 when Stellite was used. According to Metaux et Alliages, of Paris, the cost of Stellite for finishing 1,000 shells of the size was about 6c. per shell. With a cutting speed of 17 meters (about 56 ft.) the roughing of the shell and the finishing of the shell each took 21 min. with high-speed steel. When Stellite was employed, the roughing out period consumed 11 min., while the finishing work required 4 min., the cutting speed in roughing being 25 meters (82 ft.) and in the finishing work 37 meters (121 ft.).

Deloro Smelting & Refining Co., Ltd.

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North American Magnesite Company
Limited
36 Board of Trade Building, MONTREAL

WE have acquired a Plant for CLINKERING MAGNESITE with an output of 150 tons per day. This Magnesite is equal in quality to any on the market, and has given very satisfactory results in Electric Furnaces.

¶ We would be pleased to furnish samples on application, and would refer you to Mills and Electric Furnaces who have used it.



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OF ALL KINDS

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of extensive and valuable property, including lands, buildings and improvements, situated at Dragon, P.Q., 38 miles from Montreal.

Read These Particulars:

Location

This property is located on the Montreal and Ottawa short line of the Canadian Pacific Railway, distant 38 miles from Montreal on the south shore of the Ottawa River. The main line of the Canadian Pacific Railway passes through the property, and the property is connected thereto by means of one through siding, length approximately 2,000 feet, to which there are connected three spurs, with the Railway Station "Dragon" located on the east boundary of the property.

The main public road between Vaudreuil and Rigaud also traverses the property.

Power

Electric power line owned by the Vaudreuil Electric Company runs to the property, furnishing 550 volts, 60 cycle, 3-phase current.

Water Supply

The Raquette River, a tributary of the Ottawa, traverses the property, and a pump house containing ample pumping equipment is located on the bank of this river. There are also four Artesian Wells, having a combined capacity of 40,000 gallons per hour, and also a reservoir which is supplied by springs located on the hill to the south of the property, from which a gravity supply of pure water is obtained. The property is covered by extensive cast iron water mains to which numerous fire hydrants are also connected. A steel tank of 50,000 U.S. gallons capacity, located on the highest point of the property, by means of which constant pressure is obtained.

Buildings

Two extensive offices and pump house above referred to.

A Whole Village!

The property includes the village consisting of 26 houses of from six to eight rooms capacity each, four bunk houses, four clubs and one hospital building, all of frame construction on cement foundations, provided with cellars and furnished with either hot water or hot air heating, and equipped with baths and other conveniences; also provided with an efficient sewerage system, and with a pure gravity water supply obtained from the springs on the hill above referred to. All buildings are lit by electricity.

The area of the whole property is approximately 400 acres, of which the factory site covers an area of over 300 acres, the greater portion of which is surrounded by an unclimbable six-foot wire fence.

Persons Interested Please Apply for Further Particulars to

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(In Liquidation)

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Prices have increased on account of the advanced cost of Raw Material and Labour.

We have had all the business we could do comfortably, for which we thank our many customers, and wish them

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Works:
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Canada Carbide Company, Limited
MONTREAL - CANADA

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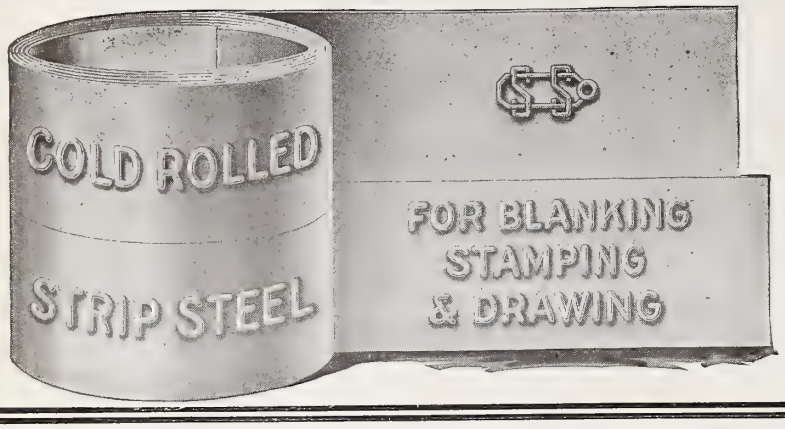
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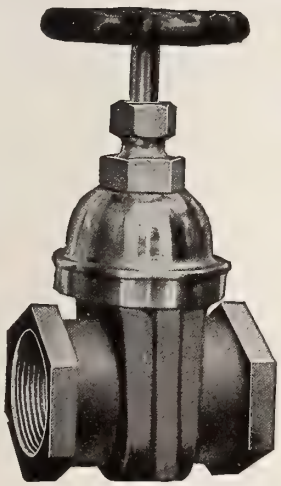
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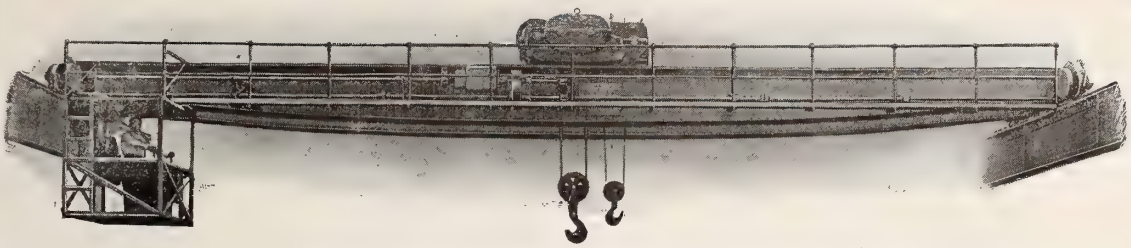
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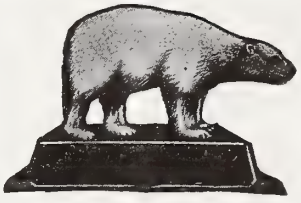
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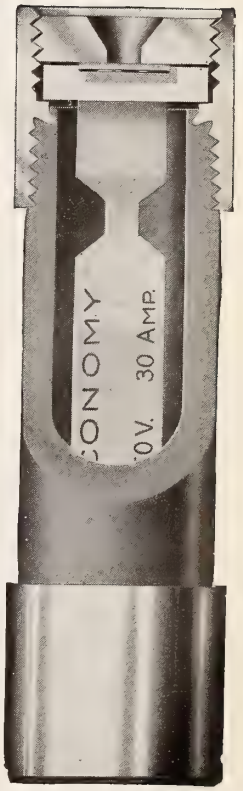
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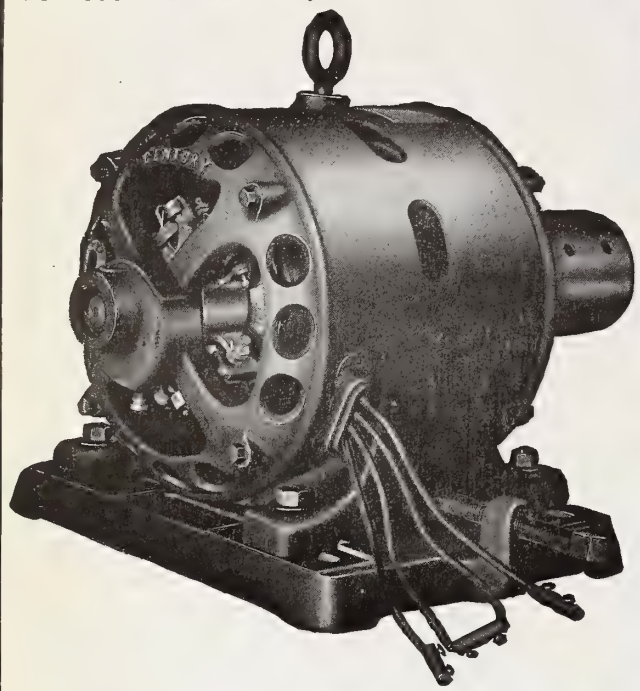


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3	10	1120	220	2	Westinghouse	CCL
2	5	1120	220	2	Westinghouse	CCL
2	5	1720	220	2	Westinghouse	CCL
1	2	1720	220	2	Westinghouse	CCL
1	2	1720	any	2 or 3	Crocker Wheeler to be wound	
3	1	1720	any	2 or 3	Westinghouse to be wound	CCL
2	10	1120	any	3	Westinghouse with Star Delta switch	CCL
1	20	850	220	3	Westinghouse	CCL
2	10	1120	220	3	Westinghouse	CCL
1	5	1120	220	3	Westinghouse	CCL
1	5	1720	220	3	Westinghouse Rewound	CCL
1	3	1720	220	3	Westinghouse	C
1	5	1720	220	3	Westinghouse	C

25 Cycle Motors.

No.	H.P.	R.P.M.	Volts.	Phase.	Make.
1	50	750	550	3	Canadian General Electric, Form K.
1	60	750	550	3	Crocker Wheeler

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2	75 k.w.	C.G.E.-H.G.	60 cycles volt.	1040	115
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1	40 k.w.	West.	60 cycles volt.	2200	220
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ROOFING PAINTS
CUP GREASE
LINSEED OIL SOAP



A Victory Loan Stunt

A few facts with reference to the National Distribution of Victory Loan Literature might be interesting—and convincing.

1,962,000 envelopes were mailed—one to every home and office in Canada.
Each envelope contained 3 pieces of literature—a letter folded twice—a folder folded twice—and a prospectus folded three times.
These three pieces had to be gathered and inserted into the envelope.
This folding, gathering and inserting required a staff—on the average—of 160 girls and 40 men.

Southam Press, as a plant, in connection with Victory Loan

Printed 8,500,000 pieces of literature.
Made 1,350,000 impressions.
Made 10,350,000 folds.
Gathered 5,886,000 pieces.
Filled 1,962,000 envelopes ; and used 15,000 square feet of floor space.

The first press started October 22nd, and delivery was completed November 9th, on time.

TORONTO **SOUTHAM PRESS LIMITED** MONTREAL
CANADA'S LEADING PRINTERS

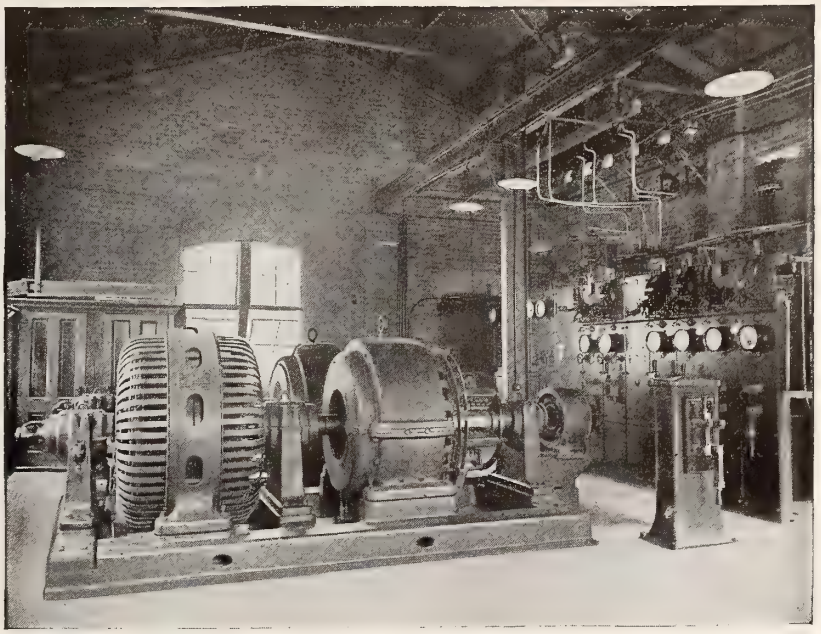


As the Campaign of the Victory Loan draws to a close, this Committee wishes to extend its sincere thanks to your concern for the kind co-operation which you have extended to us in every detail. It has been no end of convenience and


CONDULETTOS
PACKING MEMO
IN BOX !

Westinghouse

Motor-Generator Sets



Two Westinghouse 300 K.W. Motor-Generator Sets installed.

IN certain industrial applications, where good work is dependent on perfect control of the motion, direct-current service is necessary.

When the only available circuits are alternating current, the most satisfactory method of converting the alternating to direct current for such applications is by using a Westinghouse Motor-Generator.

Operating expense is reduced to a minimum, as efficiency of both motor and generator is high, and therefore the power lost through internal losses is small. Maintenance cost is negligible, as no skilled operator is required. Once started it practically runs itself.

We manufacture a complete line of motor-generators particularly adapted for every class of service.

Canadian Westinghouse Co., Limited, Hamilton, Ont.

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Barrett Specification Roofs



Made in Canada

For All First-Class Buildings—

Here is a random selection of some structures from different parts of the Dominion.

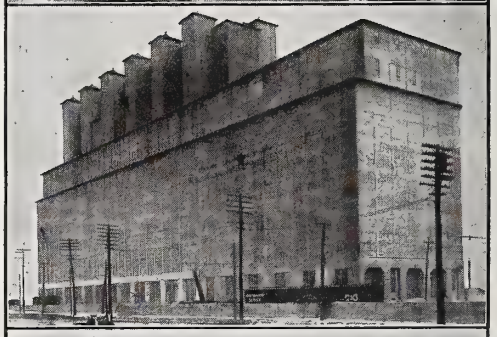
Every one of these buildings is covered with a Barrett Specification Roof.

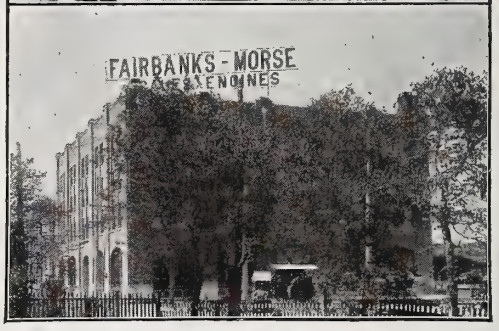
We did not have to hunt around very much to get these photographs because most large modern structures, such as factories, railroad terminals, hotels, warehouses, etc., carry Barrett Specification Roofs.

The reason is that for permanent buildings, large and small, Barrett Specification Roofs are by far the most economical and satisfactory; in fact, they are in a class by themselves.

This is best evidenced by the fact that no other roof-covering carries more than a *ten-year* guarantee, while Barrett Specification Roofs now carry a Surety Bond Guaranty for *twenty years,* and, further, these roofs take the base rate of fire insurance.







20-YEAR GUARANTY BOND

We are now prepared to give a 20-Year Surety Bond Guaranty on every Barrett Specification Roof of fifty squares and over in all towns of 25,000 population and more, *and in smaller places where our Inspection Service is available.*

This Surety Bond will be furnished by us *without charge.* Our only requirements are that the roofing contractor shall be approved by us and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

Further information and copies of The Barrett 20-Year Specification free on request.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.





INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

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Liability for Damage to a Neighbor's Property.

IN connection with the many efforts being made to reduce the appalling fire waste of Canada, it has been suggested on various occasions that legislation should be enacted making a person liable for damages to his neighbor's property resulting from a fire spreading from his own premises, where such fire is the result of his negligence or that of his servants. It is perhaps not commonly realized that the enactment of such legislation is unnecessary as, under existing laws, a person is actually liable for damages to the property of others arising through his negligence.

The principle is sufficiently well known in relation to practically every other kind of damage except that resulting from communicated fire. Even in this connection, it has long been a recognized theory in the Western Provinces where a man is liable for damage sustained by his neighbor's property resulting from prairie fires caused through careless burning of stubble, or other negligence. The fact that actions of this class have hitherto been extremely rare in Canada is doubtless principally owing to the payment of losses by the insurance companies and the resulting lack of interest on the part of the assured. There is, however, no reason why damages should not be claimed under common law. If, for instance, the occupant of a building caused a fire on his premises by placing hot ashes in a wooden receptacle, and the fire spread to an adjoining building, the neighbor would undoubtedly be in a position to recover.

The National Fire Protection Association is urging its members to induce persons injured by fire from the negligence of others to bring suit for damages under the common law. Every such case that is tried will have a salutary educative value and will serve to establish the well-known principle in this new and desired field of application. In the United States District Court of Maryland, it was recently decided that a fire caused by the negligence of a defendant or his servants is not "accidental" in such sense as to exonerate him from liability for injuries caused thereby to others. The case was that of a fire which occurred in a grain elevator, resulting in an explosion which caused the death of a number of persons and serious damage to adjoining vessels. The court decided that there could be no reasonable question that the fire was caused by the friction between a belt and its pulley due to the palpable negligence of the elevator company in failing to provide means to obviate a danger so obvious. The respondents had claimed that even so, they were not liable, as they did not seek to set fire to the ships. Both the English and American courts, however, had held that a fire caused by the negligence of a defendant or his servants was not accidental within the meaning of the law.

The principle of personal liability appears to be much older than that of insurance. One of the laws established by Moses reads as follows: "If fire break out and catch in thorns, so that the stacks of corn or the standing corn, or the field, be consumed therewith, he that kindleth the fire shall surely make restitution."

Co-operative Sales Exhibits.

THE article contributed in last month's issue by a correspondent advocating the establishment of permanent exhibits as essential to the proper development of export trade has given rise to a number of communications reinforcing the opinions expressed.

The chief difficulty in the way is expense, though there is a way that will turn the expense into a profitable investment.

Large exhibits attempting to be representative of all Canadian exportable manufactures can only be conceived as useful in large centres of population, and then their main use is in their advertising quality, and not as silent salesmanship, if the distinction is not too fine. What we mean is that a huge exhibit becomes a public spectacle at which selling may be forbidden or, at best, is simply incidental, and is not a concentrated driving salesmanship force.

An exhibit by an individual firm is an expensive proceeding, which can only be justified by a large turnover in the export market the exhibit serves. In that case it should lose its identity as an exhibit and be maintained on a scale that will make it a warehouse stock.

The problem then is to get a form of exhibit that will be economical in maintenance and effective in being open only to the people who are actual purchasers of goods displayed in the exhibit. How can this be arranged? The answer is, by manufacturers arranging themselves into groups of half a dozen or so non-competitive, but not necessarily closely allied lines, to share the expenses of light, heat, rental and other overhead charges.

Several methods might be worked out to make certain that each line is given a fair show. There are dozens of men to be found in all the countries in which Canada is interested as an export market who could capably represent a half dozen lines and sell them to the best advantage under the export conditions attaching to the firm to whom this method of catering to the export market applies. The manufacturer should first ascertain that there is a possible market, or be confident that a market can be created, for his goods in the countries selected. A representative can be selected with due care to work solely for his group on a commission basis, or on a part salary, part commission arrangement which might easily vary with each firm.

Another method that may commend itself is for each manufacturer to select his best qualified salesman, give him some preparation for his job and then each send his man in turn for one, two or three-year periods to run the business for the whole group. The exhibit office files will naturally remain the property of the group. It may also be considered desirable to have the salesman who is taking over the office for the succeeding year spend the last month of his predecessor's year getting hold of the routine in the exhibit office. A plan of this kind will give a man connected with each firm an invaluable insight nito the export trade conditions and methods and will equip the firm with an expert.

Under any plan, overhead charges could be distributed on any agreeable basis. It is suggested that the fairest way is to levy a flat rate for the first year, based on the estimated cost for that year. This can easily be ascertained. At the end of the year an adjustment can be made on the basis of completed sales. You have your unit to go by and the rate can be fairly adjusted in direct proportion to the year's turnover. This is simply suggestive. Any desirable changes can be made by the parties most concerned.

In considering a proposal of this kind it is suggested that the manufacturers observe these cautions. Be sure of your goods. Be sure of your markets. Be sure of your partners in the enterprise. Be sure of your representatives.

If anyone is interested in a proposal of the nature submitted above, we shall be glad to put him in touch with one or more firms who are ready to look into the problem.

Forty Years and After!

THE present world war has caused people to change their views on most matters. During the last quarter of a century many large industrial concerns, railroads and business houses have had an unwritten law that no man over forty-five years of age should be hired. Much has been said and written about the economic waste that has resulted from this policy, which has unnecessarily shortened by many years the productive life of countless thousands of men, and forced women and immature boys to assume the burden of family support, simply because they could get jobs, while the head of the family, though at the zenith of his mental and physical capacity, found his way absolutely barred.

The illogical character of the restriction is evident when one stops to consider that the general application of the "deadline" at forty-five would at once eliminate at least seventy-five per cent. of the principals and active executives of the great business enterprises of the country, leave our universities and colleges with depleted faculties, decimate parliament, cabinet and courts, and, incidentally, have relegated Premier Lloyd George, President Wilson, Premier Sir Robert Borden and General Sir Douglas Haig to the scrap heap several years ago. Since passing the "deadline" these famous men have carried burdens, solved problems and achieved results for humanity such as no leaders were ever confronted with. Yet if ten years ago they had, incognito, applied for a job in factory, workshop or office, and stated their age, the chances are ten to one they would even then have been told they were too old.

Confronted by a shrinking labor supply, the age "deadline" is vanishing into the limbo of forgotten things. Numerous concerns have, during the last two or three years, employed hundreds of men past forty-five for all kinds of work—clerical, mechanical and manual—with the most satisfactory results. As a matter of fact, the employers have reported that in efficiency and reliability these men have excelled their juniors. In Great Britain and the United States the great railway systems of the country, which for many years have refused to hire in any capacity men who had passed forty-five, announce their readiness to employ men up to seventy who possess the necessary qualifications. In other words, the age limit is abolished. Of course this does not mean that men of sixty and seventy will be employed for work that requires younger men, but it does mean that to a greater degree than at any time in

the last quarter of a century fitness and capacity are to be the governing factors rather than an arbitrary and senseless age limit.

Lord Bacon tells us that, "Young men are more fitted to invent than to judge, fitter for execution than for counsel, and fitter for new projects than for settled business; for the experience of age in things that fall within the compass of it, directeth them but in new things deceiveth them."

The appreciation of this philosophy will solve many fancied grievances in connection with the operation of the Military Service Act, and allay the timorous anticipations of many with respect to the operation of our varied industries.

Uniformity of Insurance Laws.

THE Insurance Superintendents of the Province of Manitoba and Saskatchewan recently addressed a letter to the insurance officials of the remaining provinces suggesting that a meeting of Insurance Superintendents of all provinces should be held in Winnipeg. The letter in part reads as follows:—

That there should be uniformity in our various provincial insurance laws regarding contracts of insurance, is the opinion of all who are interested in the business of insurance. The advantage of such uniformity, not only to the companies, but to the insurance public as well, is very patent.

Undoubtedly, each superintendent has been approached by the insurance interests with reference to this matter, and we all appreciate, not only the advantage of uniformity, but the necessity of such a condition as well. The main reason why there is not uniformity in our laws of insurance contracts, is primarily due to the fact that the insurance department of one province is not aware of the nature of legislation which is contemplated by some other department.

Appreciating the advisability of uniformity throughout the provinces, we would be pleased if you would bring this memorandum to the attention of the minister in charge of your department with a view to obtaining his permission for your attendance at that meeting. We would suggest that the first meeting be held in Winnipeg, as, owing to its geographical position, it is the most convenient place for the superintendents to meet.

This might be considered a step in the right direction, were it not for the ominous fact that the initiative has been taken by the insurance officials of two Western Provinces, the insurance legislation of which has, in some particulars, been of a rather exaggerated character. The present wide divergence between insurance laws of different provinces of Canada is confusing in the extreme. It would be a very satisfactory thing if all insurance laws in Canada could be made uniform, but it is vitally necessary that such laws should be moderate and sane—a condition which cannot be said to apply to insurance legislation enacted in some of the Prairie Provinces.

A Well-Merited Tribute.

A PLEASING tribute to the "high-minded, judicial, fair-dealing attitude" of the average traffic commissioner is paid by the *Railway Age Gazette,* which says: "The traffic commissioner of a Board of Trade or other merchants' organization has to spend a large part of his time and energy in getting justice from the railroads in behalf of complaining shippers; but sometimes shippers' grievances are not well founded and this traffic commissioner finds it his duty not to get justice, not to be an advocate, but to dispense justice, much as a judge or an arbitrator would do. He stands between a large body of constituents and a smaller body of railroad officers. If anyone thinks that these commissioners are partisans, always driving or fighting the railroads, he should attend a meeting of the National Industrial Traffic League. The high-minded, judicial, fair-dealing attitude of all of the principal participants in the discussions at this convention was constantly in evidence. Some of these men were formerly in railroad service, and they know all the weaknesses or wrongs or wickednesses that may be found in the railroads' practices; but the ex-railroader who, to please his new employer, is unreasonable or vindictive toward the carriers was conspicuous at this meeting by his absence. There was a time, years ago—we will not say how few years ago—when the Interstate Commerce Commission thought more of getting justice—from the railroads—than about placing itself in a strictly impartial attitude. If any member of that body feels in his breast a fear that this old spirit still persists, he could take lessons from some of these shippers' representatives. And there are railway traffic officers who could go to the same source for a number of lessons. Our suggestion of three weeks ago, that railway officers should perfect themselves in the art of presenting their ideas, might be amplified into an admonition also to study more assiduously the art of thinking straight. The most strenuous advocate often makes his strongest point when he makes clear to all observers that he has fairly considered both sides of his question."

The National Industrial Traffic League, it might be explained, is composed of traffic directors, managers, commissioners or other officers in charge of traffic of industrial or commercial organizations and traffic officers or representatives of shipping concerns in the United States.

The object of this League is the interchange of ideas concerning traffic matters, to co-operate with the Interstate Commerce Commission, State Railroad Commissions and Transportation Companies in promoting and securing a better understanding by the public, the states and national government, of the needs of the traffic world. To secure proper legislation, where it may be necessary, and the modification of present laws, regulations and rulings where considered harmful to the free interchange of commerce, etc.

News and Views of the Association

By G. M. MURRAY

Attitude of the Association Towards Union Government and the Military Service Act

UNDER instructions from the Executive Council, given on the 6th of December, the President and Secretary have issued the accompanying statement, which not only defines the attitude of the Association towards Union Government, and the reasons therefor, but appeals to members individually to do everything in their power to assist Unionist candidates in the forthcoming election:

Upon the eve of the most momentous decision which the people of Canada have ever been called upon to make, and before the sun rises upon the fateful day that must witness their deliberated choice of the divergent courses that lie before them, the Canadian Manufacturers Association feels impelled to express to its membership, in all parts of the Dominion, the views it holds upon the duty of the hour.

At its Annual Meeting held in Winnipeg last June, the Association without a single dissenting voice, pledged the support of its members for any measure of conscription which the Prime Minister, with his more intimate knowledge of the needs of the situation, might see fit to introduce, firmly believing that the voluntary system could no longer be depended upon to furnish the reinforcements requisite to maintain the fighting strength of Canada's overseas forces.

By having Parliament pass the Military Service Act, the Prime Minister has clearly earned the Association's active support. For it now to withhold that support would be to violate a solemn pledge and to bring down dishonor upon its own head.

As a logical sequence to the action taken at Winnipeg, the Executive Council, at its September meeting, held in Toronto, warmly commended the Prime Minister upon the announcement of his determination to form a Union Government, in order that the provisions of the Military Service Act might better be carried out. Supplementing this commendation, the full support of the Association was again definitely promised.

At a later meeting of the Executive Council, held in Montreal in October, after Union Government had been successfully consummated, the congratulations of the Association were extended to the Prime Minister, coupled with renewed assurances of loyalty and support.

By these acts, which leave no room for argument, the Association is irrevocably pledged to assist the cause of Union Government in the election now impending.

The Association has always striven to maintain itself as a non-partisan organization. It can conscientiously fight for Union Government in this campaign without in any way deviating from its traditional policy, for the Union Government, far from being a partisan Government, represents a happy fusion of strong men from both political parties, of eastern conservatism and western liberalism, of protectionists and free traders, all standing firmly together upon a common platform of military service, and united in their determination to subordinate for the time being every other issue to the one transcendent necessity of winning the war.

Canada as a nation must carry on. Our soldiers at the front, by their magnificent courage, their splendid victories and their uncomplaining sacrifice, have won for themselves and for Canada the admiration of the whole world. To fail at this stage in our support of them, to incur even the risk of delaying that support, would be to besmirch a reputation for which they have paid with their life's blood, to prove ourselves false to the Empire and to our Allies, and to cover ourselves with disgrace. The enforcement of military service will preserve our national honor and enable us to look our fellow-men in the face; a return to voluntary service, which long since ceased to yield adequate reinforcements, can only be attended by results too shameful to contemplate.

But apart from such motives of honor and loyalty, which naturally must have our first consideration, there rests upon us a heavy responsibility as employers of labor. The present prosperity of Canada is in a large measure due to war business which Great Britain and her Allies have been glad to place with us because of the effective military support we have given them. The foundation for a continuance of that business has just been laid by the success we have made of the Victory Loan. Were Canada now to defeat Union Government, and abandon military service, her chances of sharing in such business would surely be impaired, just how seriously none of us can tell. One thing we do know, and that is that the United States, upon whom we are so dependent for supplies and materials of many kinds, and by whom we have already been unintentionally but severely handicapped in the way of export restrictions, could hardly be blamed were she to tighten her embargoes against a country that had ceased to be an effective Ally. The industrial consequences by which such action might be followed in Canada make it very clear that our duty to those who as working people are dependent upon us, as well as our duty to our soldiers in France, alike impel us to put forth every effort to ensure the return of the Union Government.

The Executive Council of the Association therefore appeals to members from the Atlantic to the Pacific to lose no time in bringing their working staffs together, and placing before them in the strongest possible manner the reasons why Unionist candidates should be supported.

United States Export Restrictions and Price-Fixing Regulations

Canadian manufacturers using iron and steel products as raw material find themselves to-day in a position of unparalleled gravity. The output of Canadian furnaces and rolling mills is so largely requisitioned for war purposes that they cannot begin to supply the requirements of ordinary commercial industries. Our iron-working manufacturers, therefore, who even under normal conditions were wholly dependent upon the United States for certain kinds of iron and steel now find the measure of their dependence greatly increased.

Upon the entry of the United States into the war, that country took unto itself power to control not only the export but the prices of iron and steel products. Work of any kind which is essential to the prosecution of the war, whether it be carried on in Canada or in the United States, is freely supplied with its requirements at prices which the United States Government has fixed. The benefit of these fixed prices is enjoyed not only by the United States and Allied governments, but by contractors in Canada for munitions and ships. Canadian manufacturers engaged in the production of material contributory to the war, such as agricultural implements, are able to obtain priority certificates at Washington, which, of course, are an aid to them in getting their orders filled, although they do not receive the benefit of the price fixed for government consumption. Ordinarily commercial users of iron and steel in Canada find it next to impossible to secure the export licenses, without which they cannot buy material in the United States, and when they do succeed in obtaining the licenses, they find themselves compelled to pay prices far in advance of those which the United States' law secures to American manufacturers who, on the finished product, are competing with them in this market. In other words, a manufacturer of radiators, for example, would have to

pay nearly $50 per ton for American pig iron, which an American manufacturer of radiators could buy for $33. Inasmuch as the duty on the finished article does not begin to compensate for this difference in the price of pig iron, the Canadian manufacturer is at the mercy of his American competitor.

The situation here illustrated is by no means restricted to iron and steel manufacturers. The embargoes which the United States is putting upon exports are being enlarged almost from day to day, according as the needs of the situation become clearer, so there is no telling how wide a range of Canadian industries may ultimately be affected.

Up to the present Canada's interests in any negotiations that have taken place have suffered because of the fact that the Government of this country has no machinery for the handling of national business problems such as the Government of the United States possesses in its War Industries Board, with its various sub-committees on Priorities, Export, Transport, etc. The C. M. A. will accordingly send a strong delegation to Ottawa immediately after the elections, to urge upon the Government the establishment of such a Board in this country, clothed with broad powers, among which would be included that of negotiating as a plenipotentiary at Washington through the medium of the British Embassy.

The Income War Tax Act

Unless the administrators of the above Acts allow some of its provisions to go completely by the Board, business men are going to have a lot of trouble next year, when the Act goes into operation.

Section 6 of the Act is designed to provide for the payment of the tax as far as possible at its source. It reads in part as follows:

> All persons in whatever capacity acting, having the control, receipt, disposal or payment of fixed or determinable annual or periodical gains, profits or income of any taxpayer amounting to or exceeding fifteen hundred dollars in the case of unmarried persons or widows or widowers without dependent children, and three thousand dollars in the case of all other persons, shall, on behalf of such taxpayer, deduct and withhold an amount equal to the normal tax payable upon the same under this Act, and shall pay the amount so deducted to the Minister, and shall also make and render a separate and distinct return to the Minister of such gains, profits or income, containing the name and address of each taxpayer.

According to the above, a company, when disbursing dividends, must first deduct the tax payable by any shareholder whose total dividend for the year is in excess of his exempted income; a tenant, when paying a yearly rental in excess of the exempted income, is required to withhold from the landlord the amount of the tax the latter would be required to pay thereon; an employer, when paying wages that for the year amount to more than the exempted income, must similarly withhold the tax payable under the Act. In each case the sums so deducted must be remitted to the Minister of Finance.

This would lead to an intolerable state of affairs, if, as might naturally be inferred, any company or person failing to make the deduction ordered, were to be held responsible for the tax which it was his duty to collect from someone else.

Most business men will first learn what is required of them when they receive, some time after the 1st of March next, the forms upon which they are to make their returns. How could they possibly protect themselves then against stockholders who had sold their stock since receiving the last dividend? Or how could they protect themselves against employees who had left their employ after earning more than the exempted amount?

Pay-roll deductions would be comparatively simple if they could be spread over a whole year, but the trouble is that neither the employer nor the employee knows whether the exempted amount is going to be earned until it actually has been earned. Were the employer to commence deducting from the last few pays of the year, the tendency would be for the workmen to look for employment elsewhere, in order to evade such deductions, so that, by complying with the law, the employer would be providing his best men with an incentive to leave him.

Curiously enough a close examination of the Act discloses no penalties for failure to comply with the section quoted, in consequence of which we can only assume that it will be the policy of the administration to content itself with collecting what it can in this way, and to condone the neglect of those who refuse to come to its assistance.

Vocational Training

The Association's Maritime Branch is profoundly impressed with the prime importance of vocational training if Canada is to maintain her place among the great industrial nations after the war, and is exceedingly anxious that immediate action be taken by the Government upon the report of the Royal Commission on Industrial Training and Technical Education.

In a small way the Government is now interesting itself, through the Military Hospitals Commission, in the training of returned soldiers who are unfitted by their injuries from pursuing their pre-enlistment vocations. The handling of this problem has been attended by the very same difficulty which has always caused the Government to hesitate about launching out in the larger movement, and that difficulty is the interference with provincial rights. Inasmuch, however, as it was a war problem, that would not brook delay, prompt means were found of cutting the red tape and getting action, and it is earnestly to be hoped that the efforts of the Federal authorities in this matter will be productive of such splendid results that they will be encouraged to go further and tackle the bigger problem, the solution of which means so much to the industrial future of our country.

The Association will support the Maritime Branch in its recommendation, though it is questionable whether the present is the most opportune time to press for action.

More Grafting by Freight Handlers

The Freight Handlers of the Port of Montreal have declared December a tag month for shippers. If they have handled a pound of freight for you this past year, they will be after you for a Christmas present. When you come across you are tagged, that is to say, your name is entered upon a roster. So long as your name isn't on the roster, every freight handler along the line is supposed to know that you are a tight-wad and a knocker of labor unions, and while they themselves wouldn't have the bad taste to say so, you are left to surmise that under those circumstances your shipments will not receive the best of treatment.

The Freight Handlers' appeal reads as follows:

> At the close of each year it is customary for the various interests in touch with our activities to make a contribution

to the water-front labor organizations, in appreciation of the work done during the season.

Among Canada's accomplishments in the war may be counted the wonderful performance of the Harbor of Montreal, with its established record of being the first port in the world for despatch in loading and unloading ships. Our share in this achievement has been constant in the past and will be maintained unfailingly.

A roster is kept of those in sympathy with the principles and objects of our Association and special pages are reserved for their photographs or the advertisement of their business in our official publication *The Harbour of Montreal.*

Your firm has ranked amongst the large shippers through Montreal this year and we are hereby asking you to kindly grant your support towards the welfare of the harbor-front employees and the general efficiency of the National Port of Canada.

We remain, gentlemen,
Respectfully yours,
The Freight Handlers of the Port of Montreal.

There is only one way to treat such grafting letters and that is to ignore them entirely. Let everybody follow that course, and blackmailing by freight handlers will soon cease.

Express Classification Matters

Notice was recently received by the Association from the express companies that it was their intention to discontinue the use of baskets for meat shipments. Conferences were arranged between the interested parties resulting in a continuation of the use of these containers. The basket manufacturers have been consulted in regard to standardizing these containers, both for their own protection and that of the carriers, and the question is now under consideration.

The express companies have filed with the Railway Commission a supplement cancelling special commodity rates known as "Scale N," which is approximately 20 per cent. below merchandise, or the normal rate on lard, tallow, stearine, poultry and stock foods. All members have been notified, and unless the companies will agree to continue the rates the Board of Railway Commissioners will be asked to intervene.

Negotiations are now being carried on with the companies in regard to specifications for containers of shipments of gramaphones and records.

Negotiations with the express companies are also under way in regard to the increase of 10c. per shipment in the fee for customs service.

Drawback Regulations on Leather

The Customs authorities decided quite recently that no drawback would be allowed upon the exportation of leather with respect to duties paid upon imported hides, unless the identity of such hides were maintained continuously from the time of the payment of duty until the exportation of the finished leather.

The tanners, at a meeting held on November 9th, were unanimously of the opinion that the ruling of the Department made it virtually impossible for them to benefit by the drawback regulations. They pointed out that several tanneries put through thousands of hides per day, while practically all tanneries import many more hides than would be required to produce the amount of leather they export. To maintain the identity system throughout would be very cumbersome, and would entail a cost which the drawback would hardly be more than sufficient to offset. The tanners claim that if this ruling stands they will be forced either to forego their export trade in leather or to refuse to use domestic hides at all.

The Tariff Committee will ask the Department to deal with this matter in the same way as it deals with pig iron for use in foundries, and cotton fabric when imported for use in the manufacture of rubber belting, rubber tires, etc., viz., by computing the drawback in respect to any quantity of such hides not in excess of the quantity of like imported hides used in the manufacture of leather that is exported.

Classification No. 17

At the conclusion of those sittings of the Board of Railway Commissioners, when this matter was under discussion, it was generally understood nothing would be done until the question of mixed carload shipments had been disposed of, and until the application of the railways for an increase of 15 per cent. in freight rates had been dealt with.

Recently, however, the railways have attempted to revive the matter, and have received the endorsement of certain western Boards of Trade for a proposition to reissue the present classification—

1. By using the descriptions of articles contained in Proposed Classification No. 17.
2. By abolishing all trade lists but at the same time grouping analogous articles together, such as agricultural implements, iron, steel and hardware, insofar as they are the product of the same factory, and
3. Increasing the minimum weights where the business requirements of the community will permit.

The Association's Transportation Committee contend that no action should be taken pending rulings by the Commission in the two matters mentioned above.

In this connection it may be noted that there is an inclination in the United States towards a wider mixture of shipments in carloads, where the right does not now exist, because of the belief that it will tend to heavier loading and the more profitable use of available equipment.

Business for the Boot Manufacturers

On October 30th a deputation of boot manufacturers waited upon the new Minister of Militia, the Overseas Minister of Militia, the Chairman of the War Purchasing Commission and the Quartermaster-General, for the purpose of finding out why Canada was not receiving the army boot business to which she seemed to be entitled, by reason of the number of men she had sent overseas.

No complaint has ever attached to the Government for failure to issue Canadian-made boots to Canadian soldiers while in this country or in England, but Canadian manufacturers could not understand why they were debarred from participating in the business arising from the supply of boots to Canadian soldiers once they arrived in France. They contended that as Canada must eventually pay for such boots, this country was entitled to the business.

It appeared that the difficulty was entirely due to a difference in specification as between the English and the Canadian boot. Owing to the constant shifting of troops at the front, it was necessary to have standardized stores, in order to obviate the necessity of shifting stores when the troops themselves had to be shifted. For purely military reasons, therefore, quite beyond the control of our Government, the Canadian boot could not be used in the trenches.

The difficulty is now in a fair way to be overcome through the readiness of our Government to place a trial

order with Canadian manufacturers for 125,000 pairs made to the English specification. These boots will be issued to the new soldiers now being drafted, and it is hoped that once it is clearly demonstrated to the War Office that we can make the English boot satisfactorily in quantities in this country, we will be allowed to share in future business, at least to the extent of our own soldiers' requirements, and perhaps more.

C.M.A. Opens Office in Vancouver

On January 2nd next, the Canadian Manufacturers Association will open for business in a new place, viz., at Rooms 704-5-6, Board of Trade Building, corner Pender and Homer Streets, Vancouver. The office will be in charge of Mr. Hugh Dalton, who enters the employ of the Association as Assistant Secretary, and Secretary of the British Columbia Branch. Mr. Dalton has had training in Customs and transportation work that should make him immediately useful to Association members on the coast, by whom he is already well known and highly regarded.

Mr. Dalton's appointment rounds out a programme of branch expansion which the Association mapped out for itself over a year ago. Established as it now is with offices in Amherst, Montreal, Toronto, Hamilton, Winnipeg and Vancouver, the Association can truly claim to be a national organization, doing a national work.

Concurrent with the opening of the Vancouver office, the British Columbia Branch has been reorganized under the chairmanship of Mr. E. W. Hamber, of the British Columbia Mills, Timber & Trading Co., Ltd.

Financial Items

Collections under the new schedule of fees are keeping up splendidly. From the 1st of August, when the advance went into effect, to November 30th, the receipts from fees were $38,220 as against $27,285 for the corresponding period of 1916. During those four months, 1,036 members paid their fees who also paid their fees during the same four months of last year, and from them the collections advanced from $24,635 to $35,630, a gain of 44.60 per cent. If this ratio is maintained, the Association will have just about $25,000 a year more to spend. That means more work and better service.

The Association's subscription to the Victory Loan was $10,000.

Useful Suggestions

To every manufacturer who thinks there frequently come ideas upon which action could be had, with benefit to the whole community, if he would only send them along to the Canadian Manufacturers Association, which possesses the necessary organization for putting the wheels in motion. During the past month, for example, one of our members has sent us two suggestions, which appear to be well worth while.

Under the Dominion Companies Act, and most of the provincial Companies Acts, any omission or abbreviation of the word "Limited" as part of a company's name, is prohibited under a penalty for each offence. When the law was first passed there was some justification for such a provision on the ground of protection to the public, as joint stock companies were then the exception, not the rule, and the limitation of the individual shareholders needed to be emphasized. But now that most businesses are operated as joint stock companies, the need of emphasizing the limitation of the shareholders has practically disappeared. So long as this feature remains law, business houses are bound to obey it, notwithstanding the fact that it means continual trouble with and continued responsibility for the staff from the office boy up. Why perpetuate a legal requirement when it is attended by such inconvenience, and when it no longer serves any useful purpose?

The other suggestion is equally good. It is to the effect that all manufacturers insert in their "Application for Work" forms a question reading: "Are you the owner of a Victory Bond?" If this were generally done, it would be a source of great satisfaction to those employees who have done their duty, and would pave the way for a favorable reception of such future issues as may have to be floated.

New Members

With everybody busy on the Victory Loan our membership work suffered last month. After the first of the year we hope to get into our stride again. Meanwhile these eight new recruits are a welcome acquisition to our strength:

St. John, N.B., James Pender & Co., Ltd., Wire Nails.
Yarmouth, N.S., Canadian Woodworking Co., Ltd., Building Material.
Hamilton, Ont., Clemens Electrical Corporation of Canada, Ltd., Fuse Plugs, Etc.
Hamilton, Ont., Dowswell, Lees & Co., Ltd., H. S. Lees (2nd).
Pembroke, Ont., Superior Electric, Ltd., Electric Heating Appliances.
Sudbury, Ont., Sudbury Construction & Machinery Co., Ltd., Foundry.
Toronto, Ont., Canadian Chewing Gum Co., Ltd., C. S. F. Mitchell (2nd).
Montreal, Que., Atlas Metal & Alloys Co. of Canada, Ltd., Metal Workers.

Canadian Railway Association for National Defence

Beneficial results are confidently expected to follow the formation of the above Association, which has the endorsement of the Minister of Railways and Canals. The Transportation Committee of the Canadian Manufacturers Association has offered to co-operate in every possible way.

One of the first things to be taken up by the new organization is the return to this country of Canadian cars now in use in the United States. Since the placing of restrictions upon the movement of American cars to Canada, and in the absence of any such restrictions upon the movement of Canadian cars to the United States, the tendency has been to increase the supply across the border at Canada's expense. An endeavor will now be made to reach an equitable exchange on the basis of the number of cars owned by each country. The American lines, as represented by the American Railway Association at Washington, express their readiness to co-operate, and results are already being obtained as evidenced by the number of empty box cars that American lines are turning back to our railroads.

As regards the general outlook for freight service during the coming winter, the General Secretary of the Association writes our Transportation Department as follows:

It is difficult to say anything definite, for so much depends upon weather conditions. There is this to say, however, that, as regards fuel supply, those roads which were more or less handicapped last year on account of coal shortage, are in much better shape this year, and the locomotives and cars are also in good shape. Given favorable or average weather conditions during the coming winter, I look personally for a performance of Canadian railways that will be better than that which will be supplied by any other country in the world.

Canada's Serious Lack of Ocean Shipping

While the Canadian Shipbuilding Industry has been Revived and Given a Wonderful Impetus, Ships are being Built for Overseas Interests and Not for Canada's Own Needs

By EDWARD W. REYNOLDS

SOME of the finest land-locked harbors in the world are to be found around the Canadian coast line. From Liverpool, Fishguard, Bristol and Queenstown, the principal seaports of the British Isles, to the Orient, the shortest route lies *via* Canada. Ocean-going boats may pass upwards of 1,000 miles inland to one of the best-equipped seaports on the continent before unloading passengers and freight. Great and costly terminal facilities are at the disposal of the world's shipping at the many Canadian ports. In short, there is everything to induce the Maritime countries of the world to take advantage of the facilities afforded them by Canada. There is every inducement for Canada to take her place with other nations in handling the maritime trade. The Canadian shipbuilding industry has been revived and given a wonderful impetus, but because of an apparent lack of authoritative interest in Canada's needs, this industrial revival is being exploited by overseas interests, and Canada's own needs go by the board.

During October, Canada's aggregate trade amounted to $238,834,321, as compared with $164,330,179 in October, 1916. During the six months ending September last, Canada's total imports were $558,084,116, and the exports amounted to the following: Domestic, $112,621,462; foreign, $2,855,585. True, large quantities of these supplies go to the United States, but an increasing amount goes across the Atlantic and Pacific oceans. What would happen to this trade if the shipping interests of the world would not continue to carry Canadian goods? The lack of Canadian-owned ships would bring about industrial stagnation.

From the shipping corporations of the world, Canada receives little more recognition than does a South American republic. Tramp tonnage hardly ever comes north of New York and New England ports, unless under special charter. Canada, officially, has never made a bid for recognition. Her great waterways are used by the big shipping interests at their own convenience. It is said that rates of the St. Lawrence are practically controlled by corporations that ply the Atlantic trade, and are therefore primarily interested in the Atlantic ports south of Halifax. Just the cream of the Canadian trade is taken, and the remainder is left severely alone. The Canadian inland shipping interests know that only too well.



A Fine Canadian-built Vessel

View of the War Fox, as she steamed through the ice in the Lachine Canal

The Canadian railways, too, have perhaps unwittingly played into the hands of the big shipping companies by their refusal, or otherwise, to give through bills of lading to Canadian exporters. This action caused much loss and inconvenience to these exporters. Under the conditions imposed upon them by the war, sailings are uncertain. Delivery at the port of embarkation is uncertain. The result is that many consignees miss their boats, and storage or demurrage on cars result. For this they were charged excessive amounts; the cost running into hundreds of dollars, compared with a few dollars charged for similar storage at the U.S. ports, and not until the Canadian Manufacturers Association brought the attention of the Dominion Railway Board to this apparent discrimination, was the wrong partially rectified.

This is the condition of affairs on the Atlantic seaboard. Though somewhat different, the conditions on the Pacific seaboard have the same effect. For years past, the gradual growth of Oriental trade has been looked upon as the special preserve of the United States or Japan. Indeed the competition entailed has generated a certain amount of ill-feeling between the two countries. Alarmists talked of war. Both countries developed valuable trade connections in the East, and intended obtaining the ascendancy. But war in Europe has stemmed the ill-feeling and incipient animosities. The two countries have been getting together in regard to Pacific trade. It is stated that the U.S. war preparations for the European conflict caused uneasiness in Japan, and that she readily conceded to the U.S. demands. Anyway, the two powers have arrived at an amicable arrangement, whereby Japan will charter ships to the United States for American ship steel. This means that the two countries are going to control this valuable trade. They will use their vast shipping facilities to carry their manufactured and other goods into the Orient, and Canada cannot demand consideration from these competitors beyond what they see fit to give. Unless Canada has her own ships to carry her goods into the Orient, Canada cannot expect to hold her own in the biggest market of the world. In the trade conflict that will follow hostilities in Europe, Canada will be hemmed in on all sides because she built ships for other nations, and overseas interests, and neglected to serve her own. It will be futile to urge upon the

manufacturing interests to specialize on commodities for export, when there will be insufficient facilities for export.

Millions of dollars have been spent by the Federal Government for the improvement of harbor facilities. Canals have been widened and deepened. Lake ports like Toronto have, and are, being developed at huge cost. Transcontinental railways have been subsidized; constructed with a view to speedy delivery of products of the farm and factory at the ocean ports, and, for the lack of ships, will it be that these products will have to rot and rust at the seaports? Any manufacturer has a right to arrive at this conclusion when he hears that at an Atlantic port recently, a sailing vessel, five years old, which originally cost $30,000, was sold for $50,000, demonstrating the shortage of ships. As to whether charterage rates will make such a purchase profitable, it is easy to see that they will, when it is realized that though the insurance on the vessel was 25 per cent., and the cargo 15 per cent., the vessel's freight on the outward voyage to the Mediterranean will pay for her, and leave a profit of $5,000. Conditions like these will pertain long after the war, and the Canadian Government could obtain the necessary credit with which to build ships for Government work at such high charterage rates.



Canada's First Concrete Ship

Boat built by Atlas Construction Co., Montreal, after launching

Canada's Predicament.

Regarding shipping, Canada is in the same predicament as the United States found itself long before war broke out. War and the German submarine campaign has brought home to the people a complete comprehension of the need of ships, but only the Canadian manufacturers and shipping interests seem to realize what will result from the practical non-existence of a Canadian merchant marine. For years a big propaganda was carried on in the United States for something akin to State ownership of ships as an imperative necessity. What the United States needed years ago, and needs to-day, is ships and more ships. Lloyd George has again reiterated a plea for ships in immediate preference to men from the United States. Canada, too, needs ships, while her shipyards are overloaded with boats under construction for owners abroad.

"When peace is finally declared," said a shipbuilder to the writer, "the Allies will be forced to carry out a complete overhauling of its tonnage, many boats now included among the effectives will have to be scrapped, and the rate of construction in all the allied yards, which is now at its zenith, will not nearly make up for the losses entailed by the war. Then there will be a big demand for boats to transport the allied troops to their homes; the public does not seem to realize what this demand will mean to the Allies. Summing the situation up, every condition counts against Canada getting sufficient tonnage to meet her demands after the war, and assisting her to keep up her exports or enable her to adequately compete with other nations for foreign trade."

Canada's subsidiary position in regard to the ownership of the merchant shipping of the world is amply demonstrated in the presentation of Lloyd's shipping register. This includes vessels of 100 tons and upwards. It consisted of 30,836 vessels of 49,089,552 tons, of which 24,444, of 45,403,877 tons gross, were steamers, and 6,392, of 3,685,675 tons net, were sailing vessels. These figures are given as the tonnage at the outbreak of the war. The ownership of the steam tonnage is given as follows:

	Steamers.	Tons gross.
Great Britain and Colonies	10,123	20,523,706
Germany	2,090	5,134,720
France	1,025	1,922,286
Austria-Hungary	433	1,052,346
Russia	747	851,949
Belgium	173	341,025
Japan	1,103	1,078,386
Italy	637	1,430,475
Total	16,331	32,334,893

These figures are given for the belligerent countries only, yet they represent 71 per cent. of the total steam fleet of the world. The declaration of war immobilized a tonnage aggregating 6,187,066 tons, but about 1,200,000 tons of Teutonic shipping has since been taken over by the allies and restored to ocean traffic. The loss of ships through submarine has been at the rate of 150,000 tons monthly, based on the lowest estimate. To this depletion, which by no means represents the actual losses which, it happens, though serious, are not up to Germany's expectations, shipbuilding experts add certain losses due to the deterioration of ships entailed by strain of incessant war work, and failure, through this strain, to make provision for wear and tear.

The need of Canadian ships is therefore obvious, but the difficulties confronting the Canadian shipbuilders are many and varied. Unless some encouragement is afforded them to construct ships for Canadian use, Canadian commerce will suffer. Under present conditions, the cost of shipbuilding in Canada is 25 to 35 per cent. higher than in Great Britain. The lack of Canadian capital that will enable shipbuilders to accept a comparatively small intial bonus, and a mortgage on the ship, prevents successful com-



Canada's Largest Ocean Freighter

The 7,000-ton steamer, Porsanger, built in Canada for a Norwegian firm

petition with oversea builders, and places Canada's export interests at the virtual mercy of big combines.

Post bellum competition will be so strong that commercial collapse will be risked if nothing is done. The form which Government encouragement should take is a matter for the authorities to decide. Most nations subsidize shipbuilding, but the methods are different. Arguing the case for direct aid, the shipbuilding interests state that "Canada did not content herself with tariff protection in building up her system of land transportation; she gave direct aid, on a far more generous scale than has been vouchsafed to water transportation. It is to be noted in this connection that our national system of railway transportation, although so much more heavily subsidized, has enjoyed two great advantages over our national system of water-transportation. A Canadian railway can cut into purely American trade. All that it needs to do is to change its name, and attend to certain formalities prescribed by company law of the States invaded. Customs regulations also are much less onerous in the case of a railway. A Canadian ship cannot change her register, and cannot carry an ounce of American trade. Customs regulations hamper her more than is the case with railways. None the less, the Canadian privately-owned railways have received at least $300,000,000 in subsidies.

Canadian shipbuilding has been revived as a wartime expedient. The revival carries with it great promise for the future welfare of the Dominion, but indifference and delay will rob the industry of its new-born promise. The war is making tremendous demands upon the resources of the country, so will the trade and industrial reorganization that is to follow. Canada can minimize difficulties ahead by anticipating their needs. And by a wise and discriminating consideration of the need of a mercantile marine, those in authority can give the Canadian manufacturers a better opportunity of maintaining a balance of trade that means so much to the future welfare of the Canadian people.

NEW SHOE FACTORY.

Fine Plant Being Erected in Maisonneuve for Montreal Shoe Manufacturing Company.

A new factory is being erected on Aird Avenue and Girard Street, Maisonneuve, for the Star and Regina Shoe Companies, Montreal. It will consist of a building of three storeys, basement, sub-basement and annex. The site for the main building is 50 x 150 ft., and for the annex, 52 x 15 ft.

The factory is to be of the slow burning type, mill construction. The foundations are of concrete and the exterior plastic brick. The sills and lintels will be of concrete, with the sashes of wood and double glass. The structure is supported by concrete piers in the basement, resting on 4 x 4 double footings, with wooden posts on each storey. The floors are to be of wood, 5 x 2 inches.

Two entrances will be provided, the main one, on Aird Avenue, being of stone, while the other will be for employees, on Girard Street.

The space on the floors will be laid out for the manufacture of shoes, with the exception of a portion of the first floor, where the general offices and manager's room will be located. The boilers and coal room will be in the sub-basement. The annex will contain lavatories and elevator, and on the second and third floors separate recreation rooms for men and women, with coat rooms. The annex communicates with the main factory. Structural iron fire escapes will be provided on each floor, while the entire building will be equipped with sprinklers. Heating will be by steam, the Webster system being adopted.

GENERAL CONTRACTORS BUILD SHIPS.

Fraser, Brace & Co. Have Contract From the Government for Four 2,500-ton Wooden Steamers.

About eight acres of land have been secured by Fraser, Brace & Company, of Montreal, on the south bank of the Lachine Canal, west of Atwater Avenue, for the establishment of a shipyard. The land includes an old basin about 350 feet in depth, covered with water to a depth of about eight feet. The following buildings have been erected: Office building, storehouse, blacksmith and machine shop, sawmill, moulding loft and framing shed. The sawmill is 50 ft. wide and 200 ft. long, and the framing shed is 50 ft. wide and 100 ft. long, being the principal building on the site.

The company has a contract with the Imperial Munitions Board for the construction of four 2,500-ton dead-weight wooden steamers. The contract is for the hulls only, the machinery and boilers to be installed by other parties. Two of the hulls will be built in the bottom of the basin, and when complete will be floated by emptying water into the basin. The other two will be built alongside of the basin and will be side-launched into the basin after the launching of the first two. The basin is large enough to permit of the construction of two more boats, and additional boats can be built in the site opposite to those now under construction. The bottom of the basin is limestone, offering an excellent support for the keel blocks, but piles have to be driven to support the keels and launching ways of the steamers on shore.

Fraser, Brace & Co. is a general contracting company, and has not previously engaged in the construction of any boats larger than river scows and tugs.

POWER ON SEVERN RIVER.

Ragged Rapids Dam Blown up to Make Way for Construction of Trent Valley Canal.

The Ragged Rapids dam, on the Severn River, was blown up on November 10th. Four tons of dynamite were used in the operation, which fully met all expectations. More than two-thirds of the structure was entirely demolished. The remainder will be dealt with later. More than a thousand yards of concrete were sent into the air. The dam was completed about ten years ago, and was the third which Orillia had constructed for her power plant, the first one having given way and the second one proving unsatisfactory. It cost about $65,000. It has now been blown up as a part of the plan for canalizing the Severn River as part of the Trent Canal waterway, and a splendid new dam and power house has been built by the Department of Railways and Canals at the Swift Rapids, about a mile farther down the river. In this power house Orillia has installed a new hydraulic and electrical machinery and equipment, with a capacity of 6,000 horsepower, which will give her abundance of power for her industries at a cost of over $150,000.

The whole work at the Swift Rapids, including the lock, which will raise and lower vessels forty-seven feet at one lift, will cost three-quarters of a million dollars, and is being carried out by the Inland Construction Company. The greater part of the work has been completed, but considerable remains to be done to the lock. Orillia has for the past year been purchasing over 2,000 horse-power from the Hydro-Electric Commission, in addition to what was got from the old plant at the Ragged Rapids, and this power will now be released for the use of the towns on the Hydro's Simcoe System.

The blowing up of the dam, which was an operation of more than usual magnitude, was carried out by the Canadian Explosives Co.

The Problem of the Returned Soldier*

Pressing Necessity of Giving Returned Soldiers Vocational Training in Order to Restore the Sense of Responsibility Which Military Life has Weakened

By DR. G. B. CUTTEN
President, Acadia University

ANYTHING connected with returned soldiers is going to be a problem for fifty years. The soldier has been a ward of the nation. If there is any training in this world which unfits a man for responsibility, it is the training a soldier gets. What time shall he get up? He has nothing to say about it. What time shall he have his breakfast? He has nothing to say about it. What work shall he do? He has nothing to say about it. Where he shall go and what he shall do, he has nothing—absolutely nothing—to say about them. When he shall have his dinner, his supper, or go to bed, is not for him to say. His whole conduct is planned for him; even his family is taken care of for him. There is not a child in our homes of five years of age that has less control of his movements than the soldier in the army, and only the men in official positions have any training in responsibility.

For three years, and as much longer as the war lasts, we will be unfitting men for responsibility, and when a man has been a ward of the nation and when everything has been directed by someone else for three years for him, when he comes back the nation still takes care of him—it must. We find a sluggishness among returned soldiers we did not find before they went abroad. You have to deal with them largely as children, train them to responsibility, and get them to think and to take care of their families. We have to teach them the responsibility of taking care of themselves and of taking care of their families, and, above all things, we must not pauperize them.

Should Not be Pauperized.

I want to say that no one has a higher opinion of them than I have. I believe in them, therefore I do not want them pauperized. If they are incompetent or incapable, they must have such careful training in responsibility that they will become efficient. The government should make such provision for them, that if we meet a returned soldier on the street and he asks for help—begs—we will know that he is an impostor. We must not have a soldier begging among us. If he pretends to be a soldier and begs, we must hand him over to the police. Sometimes our hearts get the better of our heads; even if we know the beggar should not have his ten or twenty-five cents, we have not enough moral backbone to refuse him.

We are business men—we have our charities. I would not give much for a man who had no charities. They are important in life. If you would take time to consider you would find that nine times out of ten you give for the pleasure of giving, without properly considering the benefit of those receiving. We have come to feel responsible for the soldier; he has gone abroad to fight for us, and we feel it is incumbent upon us to do something for him. If that something will injure rather than help him, we should be strong enough to refuse. Worthy or unworthy, we must not pauperize the soldier—if we do, we are going to reap an awful harvest.

The Returned Soldier and Education.

It is absolutely true so far as the soldier is concerned that if he is going to make good he must be educated. Technical education for the returned soldier will solve the problem—if not, the problem will be with us for the next one hundred years. We cannot have any solution without education and this is realized by those who are doing what is being done for the Canadian soldiers at the present time. At the convalescent hospitals they insist on the soldiers taking a certain amount of industrial training, to teach them to concentrate—to occupy them. You will find, however, that these men will not take their industrial training; they do not want it. When given a choice of courses they will take automobiling because they think that means driving an automobile. When they find that it means taking an automobile to pieces, etc., they are no longer interested. They do not want the training that is offered, and it is the ones who need it most who refuse.

Professor Sexton gave two or three examples of splendid results accomplished. There are a number of cases where much might be done, but it is not, because the soldier does not want to make the effort. Some responsibility must be thrown on the soldier, if we are to make a success of this problem. How far we have to educate them, and what is the education we must give them, is what we must decide. I have had some young men come to me repeatedly, speaking of vocations, and wanting to know if I had any advice to give them. As a young pastor I often used to give advice, but after a while I found that they want you to confirm their own ideas. When people ask advice that is often what they want—to have their own ideas confirmed.

I was thinking the other day that if we had money enough there are two things I would like to put in operation; one was a trade school and the other was a four years' commercial course. We have a lot of industrial courses, but I do not know of a trade school that turns out a man, at the end of a course, a competent machinist, a competent bricklayer, a competent carpenter—a man who could go into your shop and do work at once. That is what we need. The industrial training is good as far as it goes, but we need a trade school. If a young man is to go to work in a factory to learn a trade he wastes about half or three-quarters of his time as far as his trade is concerned. He goes in to be a machinist—he is put on a lathe. If he has any brains he does not need to work a year or two to learn how to run it. It may be better for the manufacturer to have him do just one thing.

Trade Schools are Needed.

The labor unions are not particularly anxious for trade schools. A trade school with modern methods is needed. Take for instance the brick or stone mason. We are laying bricks just the same to-day as they did when the pyramids

*Address delivered at the Sydney Convention of the Maritime Branch, Canadian Manufacturers Association.

were built. Take some of the experiments that have been made. It took fourteen separate movements to lay a brick in the old method. It takes four movements by the modern method. Two or three dollars a day additional wages might be paid and twice as many bricks laid. The trade school would do things in the modern way. I believe it would pay the C.M.A. to look into the question of trade schools and industrial training. You can waste a lot of time in industrial training. Have trade schools, and look to the trade schools for your trained men.

What I mean by a commercial course is something for the manufacturer, not for the local tradesmen. A commercial course would take in some mathematics; it would take in French, German, Spanish, and Italian. Acadia College is the only college in the Maritime Provinces that teaches Spanish and Italian. Most employers think Spanish useful in view of the South American and West Indian trade. The course would take in book-keeping, for a business man ought to know how to keep books, so that he can see that it is properly done. It would take in economics, a special department in economics—psychology of advertising and commercial geography—so that a man would know about different countries, their exports and imports, and where these were exported or imported to and from. It should also give the student some idea of salesmanship, etc.

A Commercial Course.

A man could have such a general knowledge and business training that, at the end of a four years' course, if he entered business, while he could not run it as his father could, in ten years' time he would be able to run it better. Yale and Harvard have such a course—perhaps Chicago; but in Canada this thing is needed. You, as business men, know that if you could go back you would be glad if such a course had been offered you.

I was thinking this morning of something that took place in the United States. There were only two forestry schools in the United States—Cornell and Yale. The United States Forestry Association gave one hundred thousand dollars to Yale University for the establishment of two professorships in the Forestry School. There was not any doubt in the world but that the Forestry Association was in earnest—you will have to admit that that is a test of earnestness—one hundred thousand dollars. Such a thing might be done by the C.M.A. if they are in earnest about this trade school. It might be in the Maritime Provinces or it might be in Montreal. The Dominion Government would naturally know that the C.M.A. was in earnest if they took up something of this kind. I was much interested in knowing that they provided scholarships in Toronto, but scholarships are not very much good unless there is something to learn. While Toronto has probably established a splendid school, the Association should start in providing a real trade school.

The Returned Soldier and Employment.

The first thing I want to say is that the manufacturers can do a great deal in the way of employing returned soldiers, and the Government can do a great deal in the way of employing returned soldiers, but there is a danger here as far as the Government is concerned. All respect and honor is due to the man who has suffered. But that a man has been wounded is not sufficient training. The man should have some consideration, but the public should have some consideration, too. It would pay the Government to double that man's pension rather than have him occupying a position which he is not competent to fill. It is the same with the manufacturers. If a returned soldier comes and says, "I want a job," if that man is as good as any other man, any manufacturer would be dishonorable from every standpoint if he did not give him the preference. But if you employ a man who is not fit and will not be fit—you injure him and yourself. Give him a trial of two or three months; if he is going to be any good, he will show it. If he cannot do the work, you are letting your heart run away with you if you keep him on. It comes back to the same point—education is the solution. If he has that education, you cannot do without the returned soldier. You will want him in your business.

The Returned Soldier and Politics.

I would not be surprised if in ten years' time the returned soldier were running the country politically. The Grand Army of the United States has been doing that for some time—since the Civil War. Anyone who had ever heard of the Civil War got a pension. One hundred and fifty million dollars a year the United States is paying in pensions, and that war closed fifty years ago. The returned soldier's vote was something that the politicians catered to; if the Government did not give the returned soldier all he wanted, they put it out. If the G.A.R. wanted anything a politician would do anything to procure it. There is a Returned Soldiers' Association at the present time. I have inquired about it. I found some of the most efficient officers are not allying themselves with it. Pensions have been doubled; I have no doubt that they may be doubled again and yet again. If a soldier is living in a certain county, and wants a pension, a politician who is "repairing his fences" will see that he gets it, even if it is not deserved. I am pointing out the danger not only for the country as a whole, but especially for the returned soldier himself; anything we can do to deprive the returned soldier of his manhood is wrong. He is brave, no other soldier is braver—no other soldier has done greater work, but for his own sake we must treat him as a man. There is a danger for him as for ourselves; the best thing we can do for him is to educate him. If he has an education, employ him; if not, help him to get one; for the sake of the soldier and for the sake of the manufacturer, and for the sake of our country—the country in which we live."

CANADA'S "WOOD PILE."

Every Square Mile of Growing Timber Will Double in Value After the War.

Canada holds the only large forests in the whole British Empire. Australia and New Zealand, and South Africa, have sacrificed most of their original timber to the fire fiend and ruthless exploitation. These facts emphasize Canada's strategic position as containing the only "wood pile" available to the Empire, except those of Russia. Sixty per cent. of John Bull's huge timber demand is supplied by the Russian people to-day, for the British Isles provide only one log out of eight actually needed for home use. What part Canada's forests will play in British trade after the war is problematical, but there is no lack of prophets to predict that every square mile of growing timber will double in value under the strain of post-bellum demand from the devastated districts of Europe. Meanwhile Canadian governments can prepare to take full advantage of increasing timber values by thorough fire protection and scientific control of wasteful lumbering.

Peterborough as an Industrial Centre

How a One-Time Backwoods Lumbering Settlement Has Developed of Recent Years, by Virtue of Natural Advantages and a Progressive Promotion Policy, into a Busy Manufacturing City

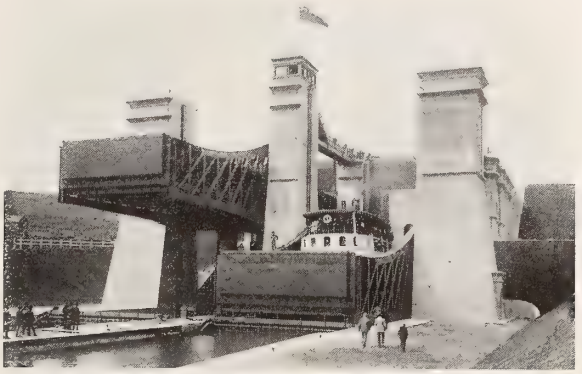
By W. A. CRAICK

IN certain respects, the city of Peterborough owes its development as an industrial centre to causes similar to those which have contributed to the advancement of Welland.* These are briefly: Plentiful hydro-electric energy developed close at hand; competitive rail routes radiating in several directions; and an alternative water route by means of an extensive canal system. If with these, one couples a satisfactory labor supply, drawn to a considerable extent from a large surrounding agricultural population, and attractive residential features, which make the city a pleasant place of abode, then practically all the elements needed to attract and hold industry are present. The location of Peterborough is referred to as a point in its favor also. It stands midway between the prosperous cities and farming communities of Western Ontario and the thickly peopled sections of Quebec, and is thus in a position to reach both east and west with equal facility. Its rail and water routes also place it midway between Georgian Bay and Lake Ontario and on the through line of traffic between the North-West and the seaboard.

Peterborough's history dates back to the early years of the nineteenth century. As a setting for the founding of the city one must recall the coming to the neighborhood of officers and men from the British regiments disbanded after the Napoleonic wars. These hardy pioneers made their way into the backwoods and started to open up the country. There followed them up the Otonabee River in 1819 a number of men from the lake front who proposed to build saw and grist mills at some favorable spot to supply the needs of the uewcomers. A site was picked out where Peterborough now stands, and the following year—1820—Adam Scott and his son, from Cobourg, returned and built a sawmill.

From 1820 to 1827 the place was known as Scott's Plains, but in the latter year it was named Peterborough, in honor of the Hon. Peter Robinson, brother of Sir John Beverley Robinson, Chief Justice of Upper Canada. Mr. Robinson had in 1825 paid a visit to England, with a view to promoting emigration to Canada, and one result of his efforts was to bring a considerable party of Irish settlers to Peterborough and its vicinity. These people formed the nucleus of the population of what was destined to become the future industrial centre. Growth now became comparatively rapid. The settlement was splendidly located for the prosecution of the lumbering industry, and as the years passed this business became of increasing importance. By 1838 there were 1,500 people in the village, and its industries numbered two flour mills, seven saw mills, five distilleries, two breweries and two tanneries. By 1850 the population exceeded 2,000 and Peterborough became a town. By 1860 population had nearly doubled this figure.

It was, as indicated, the lumbering industry that gave the place its early start. In the sixties, the Otonabee was lined with sawmills, some of very large capacity. The Nassau mill was one of the finest in the province. It had a record of 90,000 feet in twelve hours, and its challenge to any other mill to beat this record remained unanswered. Perry's mill had a capacity of 60,000 feet in 24 hours; Snyder's mill could produce as much; the Blythe saw mill cut 20,000 feet per day; Dickson's steam mill and Ludgate's mill had each capacities of 50,000 feet per day; Austen's mill could cut 15,000 feet and



The Mecca of Sightseers

The famous Peterborough Lift Lock on the Trent Valley Canal



View near the Business Centre

Approach to the intersection of George and Charlotte Streets, Peterborough

* See "The Industrial Evolution of Welland," November issue.



Provincial Normal School



Collegiate Institute

Two of Peterborough's Educational Institutions

Boswell's 25,000 feet per day. And there were thirty-four other mills in the district.

But lumbering had its day. One by one these once busy mills disappeared, and for a time a sort of industrial stagnation set in. Eventually a new era dawned, and, with the advent of cheap electrical power and other facilities, industry revived. To-day Peterborough has expanded into a city of 25,000 inhabitants, with a long list of flourishing manufacturing establishments.

Statistics Tell Tale of Growth.

The growth of the city is clearly reflected in the statistics of assessment, bank clearings, building permits, etc. The assessment has expanded from $4,721,320 in 1903 to $13,273,710 in the present year. Bank clearings, which were $1,768,868 in July, 1914, when the clearing house was established, reached a total of $2,993,126 in October, 1917. Building permits started at $238,963 in 1908, expanded to $517,958 in 1910, receded to $92,110 in 1916, but this year approach the million dollar mark, with $945,933 to the end of October.

For many years after its foundation as a backwoods settlement, Peterborough was without rail communication with the outside world. In summer, access to the lake front at Cobourg or Port Hope was secured via the Otonabee River and Rice Lake by boat and thence by wagon road. After awhile a regular line of stages started running. The first railway to enter the place was the Cobourg & Peterborough line, which was completed in 1854. The severe winters of 1855-57, however, put the Rice Lake bridge out of commission and this road was never a real success. In 1858 a branch from Millbrook gave a much needed connection with the Port Hope & Lindsay Railway, and Peterborough's place on the railway map was established. Later, lines were finished to Lakefield and Belleville and, with the completion of the Ontario & Quebec Railway, now the C.P.R., Peterborough became an important railway centre.



A Beautiful Ecclesiastical Setting

The grounds of St. John's Church are one of the most charming spots in the city

The Famous Lift Lock.

As far back as 1833 a project was advanced for the canalizing of the Trent and Otonabee Rivers, and in 1835 a survey was made for a canal from Peterborough to Lake Simcoe. Out of this early proposal there has since developed the Trent Valley Canal, which is nearing completion from Trenton on the Bay of Quinte to Georgian Bay. The canal passes through Peterborough, and at this point there has been constructed one of the unique engineering features in connection with the work. This is a lift lock of huge proportions, containing 26,000 cubic yards of cement, the largest monolithic mass of concrete in the world.

The lock consists of two chambers constructed of steel plates, which move up and down between huge concrete guide towers. These chambers each measure 140 x 33 x 9 ft. 10 in. and have a rise of 65 feet. The guide towers are 100 feet high and measure 26 ft. 6 in. x 40 ft. 8 in. at the base. The operation of conveying a ship from one level to the other is performed in 12 minutes, the actual movement being completed in 90 seconds. The lock, which cost $500,000, was finished in 1904.

From the power standpoint, Peterborough is strategically located in the centre of a district full of excellent waterpowers, and as yet the



A Glimpse of Victoria Park

This is one of the beauty spots in the heart of the city; there are several other fine parks within the municip lity

potentialities of these powers have scarcely been touched. On the Trent River, the Otonabee River, and higher up the Trent Valley at Burleigh, Buckhorn and other points, there are numerous falls, some of which have been harnessed and some have not yet been developed. The Hydro-Electric Power Commission of Ontario now owns these powers, and through the Peterborough Utilities Commission the local needs are supplied. At present there is ample power available, but just as soon as the demand begins to catch up to the supply one or more of the undeveloped powers can easily be brought into action.

Low Cost of Electric Power.

The consumption charge for the first 50 hours per month is 1.3 cents per kilowatt hour; for the second fifty hours use per month, .8 cents per kilowatt hour, and all additional consumption per month, .1 cent per kilowatt hour, with a local discount of 10 and 10. The service rate is $1 per h.p. per month. It will be found that these rates compare most favorably with those in force in other industrial centres in Ontario. More than that, it is to be noted that as power is derived from several points, there is much less danger of interruption of service than if the power came from a single source.

The city's water supply is secured from the Otonabee River and is taken from the river at a point well above the city. The pumping station has a capacity of 10,500,000 gals. per day, but the average required last year was only 2,970,888 gals. There are 44 miles of mains and the water is pumped direct.

A street car system is operated by the Hydro-Electric Power Commission of Ontario, supplying a service to outlying sections of the city. It is a paying utility and will presumably be eventually taken over by the city itself and operated by the Utilities Commission.

From the residential standpoint, Peterborough has much to offer both manufacturer and artisan. Apart from being physically attractive by reason of its undulations, its parks, its waterways and broad, shaded streets, it is on the threshold of one of Canada's finest lake regions, where it is possible to enjoy outdoor life to the full during the summer months. Many citizens own cottages on the Kawartha Lakes, while it is a common thing for an artisan to camp for the summer on the banks of the Otonabee and run in and out each day in his own motorboat. The pleasures of motoring and picnicing can also be enjoyed in great variety by residents of Peterborough.

Numerous Parks in the City.

The city is especially well provided with parks. In the heart of the city are to be found Central Park, on which front the collegiate institute and the armories; and Victoria Park, with the court house and county buildings overlooking it. Both of these parks are well looked after by the local Horticultural Society. On the outskirts of the city are to be found Jackson Park, East Nicholls Park, West Nicholls Park, King Edward Park and Riverside Park. Three of these parks have been gifts to the city by the Nicholls Estate and all are fine, large stretches of ground of great value to the growing city. Educationally the city is blessed with no less than nine public and separate schools and a collegiate institute, all fine modern buildings. Peterborough is also fortunate in being the location of one of the new provincial

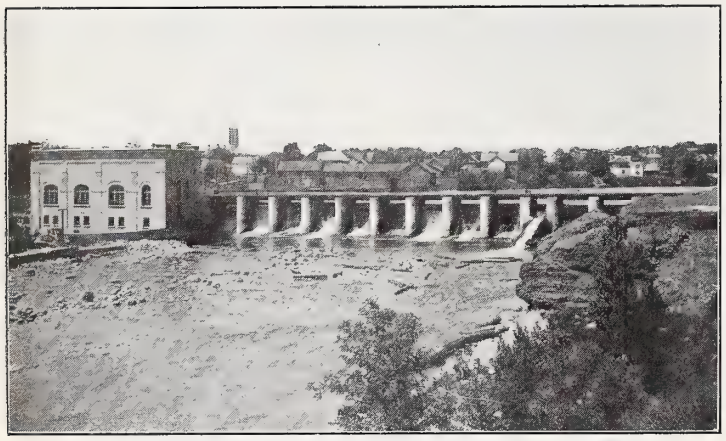


Peterborough Public Library

One of the advantages offered by the city is a fine library in a splendid building



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Peterborough's Water Powers

All along the Otonabee River between Peterborough and Lakefield occurs a succession of water-powers, from which the city derives abundant hydro-electric energy. On this page from top to bottom appear (1) The Locks Bridge Dam; (2) The Quaker Oats Dam; (3) The Waterworks Dam, leased to the Canadian General Electric Co.; (4) Nassau Dam of the Canadian General Electric Co.

normal schools. There is an excellent public library, which is the special care of a number of public-spirited citizens, and a conservatory of music. The local opera house is on one of the best theatrical circuits and there is no lack of moving picture theatres.

The Canadian General Electric Co.

Of Peterborough's present-day industries, the largest and most important is that of the Canadian General Electric Company, of which Lt.-Col. the Hon. Frederic Nicholls is president and general manager. This company had its origin in a syndicate of ten Toronto citizens, formed in 1887, with a capital of $10,000, to inquire into the feasibility of establishing in Toronto electric light and power by means of underground wires. Organized in 1892, the Canadian General Electric Company took over the Toronto Construction and Electrical Supply Company, which had been formed by the syndicate the previous year, and had made an alliance with the Thomson-Houston Electric Company of Boston, and it also purchased the Canadian interests and property of the Edison Electric Light Company, including the factory they had established at Peterborough.

At the time of the formation of the Canadian General Electric Company, the capital assets consisted solely of the land and buildings at Peterborough, whereas to-day it owns ten manufacturing establishments, the head office in Toronto, and seven branch office buildings. The factories comprise: The main Electrical Works at Peterborough; the Electric Porcelain Works at Peterborough; the Canada Foundry Works at Toronto; the Architectural Bronze and Iron Works at Toronto; the Canadian Sunbeam Lamp Works, Toronto; the Bridge and Structural Steel Works at Bridgeburg, Ont.; the Canadian Allis-Chalmers Works at Montreal; the Tungsten Electric Lamp Works at Montreal; and the Flour Mill Machinery Works at Stratford, Ont. In the more important centres, the branch office buildings occupied are owned by the Company, and have been constructed to suit its own requirements. Each district has an adequate staff, and carries a stock of merchandize suitable to the needs of the local customers.

In the twenty-five year interval an immense expansion has taken place, which is well illustrated by the growth of the industry in Peterborough. Building has followed building and enlargement enlargement, until to-day the plant occupies a site of about thirty-five acres and employs over 2,000 hands. The principal output consists of generators, motors, transformers, switchboards, wire and cable and the heavier kinds of electrical apparatus, while an adjoining factory makes the porcelain appliances required for electric purposes. The company derives its power from its own power plants, located on the Otonabee River. In 1901 a valuable site was acquired, four miles from the works, where a power plant was installed and again, in 1910, the company secured a twenty-year lease-

Peterborough's Water Powers

In a distance of ten miles in and above the City of Peterborough there are located twelve water-powers, but of these only six are developed. On this page (1) Otonabee Power Co.'s Dam; (2) Canada Cement Co.'s Power House and Dam; (3) Dam No. 24 (undeveloped), and (4) The Lakefield Dam. Farther up the Trent Valley Canal, there are numerous other powers of large potentiality awaiting development.

hold of a part of the Peterborough waterworks dam, where additional power is developed.

The company has now a paid up capital of $10,000,000, a surplus of over $4,000,000, assets of over $25,000,000, and has a total of 5,000 to 6,000 employees.

The Quaker Oats Co.

Second in importance to the works of the Canadian General Electric Co. must be ranked the huge plant of the Quaker Oats Company, now nearing completion. This industry was originally established in 1900 as the American Cereal Co., a branch of the Quaker Oats Co. It was an immense concern, shipping and receiving forty carloads a day. Burnt out over a year ago, the Company decided to rebuild in Peterborough and a second and larger plant is now under construction. It will be ready for partial operation on March 1 and for full operation on July 1.

The new plant consists of mill, nine stories and basement; dry house and cleaning house, the same; packing house, eight stories and basement; flour mill, feed plant and puffed goods plant, each nine stories and basement; and two warehouses, each eight stories and basement. The elevators adjoining will have a capacity of 1,500,000 bushels. Outside of the elevators, there will be a floor space of 600,000 square feet. Sixty thousand bushels of grain will be used every day and 100 cars, both in and out, will be required to handle each day's business. At least 3,000 h.p. of electric energy will be consumed.

Peterborough Lock Mfg. Co.

Peterborough possesses in the Peterborough Lock Mfg. Co., Limited, probably the oldest lock manufacturing industry in the Dominion. It was established in 1885 and has enjoyed a steady growth. Its product has been used in practically all parts of the Dominion in building operations. Since the war commenced, the company has branched out into the manufacture of military hardware, that is, buckles and brass equipment for soldiers' uniforms, and has during the past year manufactured a large quantity of ship hardware for the various ships being built in all parts of the Dominion. It has also turned out large quantities of shell box bands and plug castings.

The Canoe Industry.

Peterborough has long been famous for its canoes and there are to-day at least two flourishing industries making canoes and other craft. The older of the two is the Peterborough Canoe Co., which was founded in 1879 by the late Col. J. Z. Rogers. This company has grown to considerable proportions and now operates a plant with a capacity of 3,000 craft per annum. This consists of the main factory, comprising three buildings, with a total floor space of 38,000 sq. feet, and several storage warehouses, with 30,000 sq. feet floor space. The factory is equipped with up-to-date wood-working machinery and with all necessary plant for manufacturing boats of all kinds. In addition to canoes and small boats, the company also manufacture motor boats of all sizes, and steam-



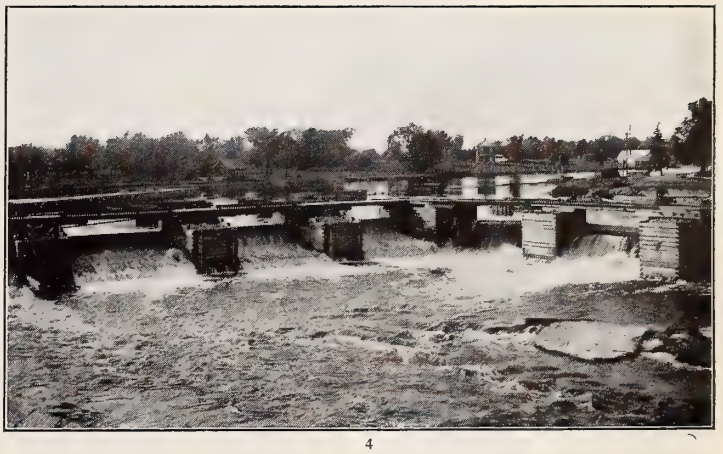
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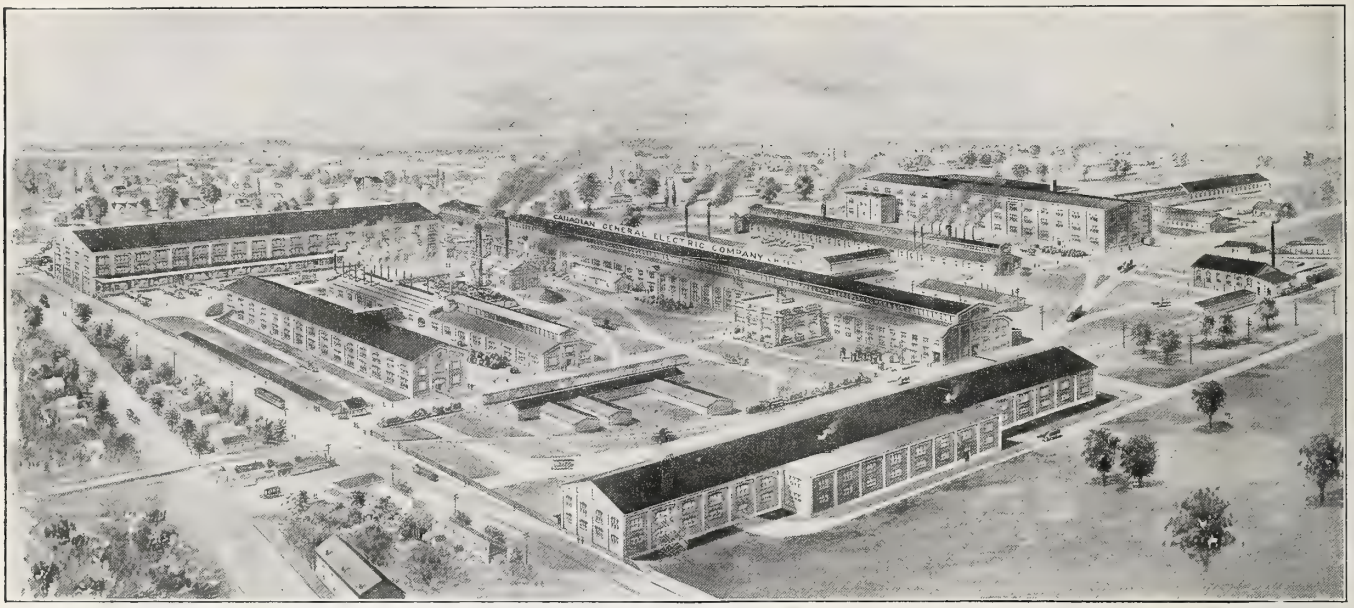
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Main Electrical Works of the Canadian General Electric Co., Limited

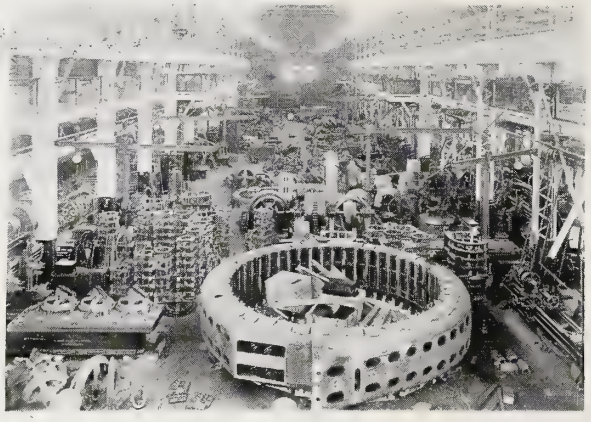
This plant has long been Peterborough's foremost industry, occupying a site of about 35 acres and employing over 2,000 hands

boats, and it has turned out quite a few special boats, ranging from 45 ft. to 100 ft. It also manufactures toboggans. Prior to the war the average yearly production ran about 2,200 boats.

The other boat and canoe manufacturing plant is that of the Canadian Canoe Company, which was organized in 1892. This company occupies a fine three-story building, erected in 1911, and having a floor space of 14,500 sq. feet. The company's output runs to 1,000 craft a year, these including wooden and canvas-covered canoes, outboard motor skiffs and all small pleasure craft.

Bonner Worth Co., Limited.

Peterborough was selected by the Bonner Worth Co., Limited, in 1911 for the location of its plant, because it was centrally located between Quebec and Ontario, because it looked to be a good place to secure plenty of female help, and because the water supply was found to be suitable for dyeing, which was a very important consideration. The company manufactures all kinds of worsted yarns (supplying the knitting factories, making sweaters, hosiery and fancy knit goods), weaving yarns, carpet yarns and also hand knitting yarns, which it sells to the retail trade. The business has grown rapidly and several enlargements of plant have been made. About 275 hands are employed.



Interior of Main Shop

Peterborough Works, Canadian General Electric Co.

The De Laval Co., Limited.

The De Laval Co., Ltd., is the cumulative result of the business activities, first, of The De Laval Mfg. Co., which began in Montreal in 1899, and The De Laval Separator Co., which began in Toronto in 1901. The company was interested purely in a sales way at that time, of developing the organization for the distribution of its De Laval cream separators and other special centrifugal machinery. After several years of effort in Ontario, and having well organized that province, the company removed to Montreal for the purpose of giving better attention to eastern territory and being more centrally located on the whole. The company's western activities were looked after by its Winnipeg offices currently with those of the



Porcelain Works

Canadian General Electric Co.'s Peterborough Plant

eastern offices. Having, after a matter of some ten years, well organized the entire Dominion in a sales way, and having acquired several business projects closely related to its own line of manufactures, the company's name was changed to that of "The De Laval Co., Ltd.," and its various businesses in a manufacturing way were concentrated in the City of Peterborough in 1912.



Plant of the Canadian Canoe Co.

The company's line of manufactures include the De Laval cream separators and other centrifugal machinery, the Ideal green feed silos, creamery and milk plant machinery, including pasteurizers, churns, coolers, vats, pumps and various other related accessories of use in the creamery, cheese factory and milk plant industries.

The company is capitalized at $1,000,000, fully paid up. Its factory in Peterborough was referred to by INDUSTRIAL CANADA some time ago as being a model of convenience and general arrangement. The factory buildings are of one story, saw-tooth roof, construction. The creamery factory wing is approximately 110 ft. by 585 ft; the warehouse is 110 ft. by 220 ft., and the separator factory, with the tin shop, is 110 ft. by, approximately, 250 ft. The entire plant is constructed of concrete and steel, with buff brick facing, and is fully sprinklered throughout. Fire protection has been amply provided for in all details. The company's ground space covers approximately sixteen acres.

The company uses, approximately, 4,000,000 feet of lumber per annum in its various manufactures of wood. The office building is generally regarded by those who have visited it as being as fine as anything that Canada has to show in all of its appointments, the company believing that those who are engaged in its business do better work by reason of a pleasant environment.



Plant of the Bonner-Worth Co.

Established Many Years.

A Peterborough industry which dates far back into the last century is the Peter Hamilton Co., Limited, manufacturers of farm implements. It was established in 1848 by the late James Hamilton. The company employs about eighty hands and produces all the lighter lines of implements, such as cultivators, drills, harrows, mowers, rakes, etc. These implements have always enjoyed a good reputation and considerable export business, especially to Australia, has been done in them.

The name Hamilton is a well-known one in Peterborough, for there are two manufacturing establishments with this name. The second is the Wm. Hamilton Mfg. Co. This company was founded in 1857, when it took over the foundry of James Harvey. The joint stock company was formed in 1883.



Plant of B. F. Ackerman, Son & Co.



Extensive Premises of the De Laval Co., Limited

Colonial Weaving Co.

An industry which has been displaying originality of effort since the war started is the Colonial Weaving Company. This company, which was organized in 1903, specializes in woven silk and cotton labels for the use of garment and hat manufacturers. Starting with six machines, it is now operating fifty, and giving employment to about eighty hands. In addition to labels, the company is now making cotton non-elastic webbing, dress belts, tapes, trimmings and embroideries. It has succeeded in producing several lines of embroidery formerly made in Germany and is meeting with success in marketing them.

Adam Hall, Limited.

Peterborough possesses an old-established stove and range industry in the manufacturing establishment of Adam Hall, Limited. As originally started, the output of the plant was limited to ranges and heaters for use in lumbering camps, where primitive conditions then prevailed, and for thirty-seven years Adam Hall products figured prominently in the equipment of lumber and construction camps throughout the timber districts of Canada. The success of these lumberman ranges and heaters led later to the manufacture of household lines, these being known as the "Tropics."

B. F. Ackerman, Son & Co.

One of Peterborough's expanding industries, which has now been located in the city for a quarter of a century, is that of B. F. Ackerman, Son & Co. This firm have long specialized in saddlery, harness and general leather goods. The industry was started in 1871 in Port Perry by Mr. B. F. Ackerman, but in 1892 was removed to Peterborough, where at first rented premises were occupied. With the growth of business, however, the large three-story building at present occupied by the company was erected in 1899. Later a branch establishment was opened in Regina. The company has recently demonstrated its virility by commencing the manufacture of boots and shoes, in addition to the established lines.

A recent addition to the list of Peterborough industries is the Vermont Marble Co., which was established in 1913. It engages in the manufacture of marble for building purposes and when the building business is good in the neighborhood of fifty men are employed. The company's head office is located in Proctor, Vt.



Where "Peterborough" Canoes are Built

J. J. Turner & Sons, Limited.

A certain amount of personal interest attaches to the manufacturing establishment of J. J. Turner & Sons, Limited, in that it has been built up from small beginnings by a father and four sons. It was started originally in 1870 by the late J. J. Turner, and was devoted exclusively at first to the making of sails. Later its scope was extended to include tents, awnings and flags, while more recently horse blankets have been added to the list of products. The firm now consists of the four sons of the founder and about 150 hands are employed.

Matthews-Blackwell, Limited.

The Peterborough plant of Matthews-Blackwell, Limited, was established in the early eighties by George Matthews, of Lindsay, and later under the management of his son, T. F. Matthews, the business expanded very considerably. The present company is the result of a merger of the original Matthews Company with the Lang Packing Company and other concerns.

Some Other Industries.

The Brinton Carpet Co., who manufacture Wilton, Brussels and Axminster carpets, located in Peterborough in 1905. They employ about 80 hands at present and operate 36 Brussels and Wilton and 10 Axminster looms.

Among other industries located in Peterborough are Henry Hope & Sons, a branch of an English firm, who manufacture metal sash and doors for factories and public buildings and other fireproof materials; G. Walter Green, Limited, who make sawmill machinery and castings; the Peterborough Lumber Co., whose sawmills produce from eight to nine million feet of lumber and six million lath and shingles per annum; the estate of A. McDonald, manufacturers of lumber, lath, shingles, boxes, box shooks, etc.

The Railway Problem Here and Elsewhere

Steps Which Have Been Taken in Great Britain, the United States and Canada to Solve the Tremendous Transportation Problems Imposed by the War

THE railway companies of Canada, in order to cope with the serious transportation problems resulting from the pressure of war-time conditions, have recently formed an organization known as the Canadian Railway Association for National Defence. The executive of the organization is composed of the chief executives of the principal Canadian railways, while the actual work of the Association is allotted to various committees.

Canada's scheme to grapple with the problems confronting the railroads of the country imitates to a certain extent the plan adopted by the railway companies of the United States. To understand just what this plan is and how it came into being, let us quote from an address delivered last month before the National Industrial Traffic League, New York, by Hale Holden, President of the Burlington Railway.

The United States Solution.

"In the proclamation issued by the President on April 16 he said:

"'To the men who run the railways of the country, whether they be managers or operative employees, let me say that the railways are the arteries of the nation's life and that upon them rests the immense responsibility of seeing to it that those arteries suffer no obstruction of any kind, no inefficiency or slackened power.'

"This call was preceded by a few days by a resolution passed by the Council of National Defence calling upon the railroads 'to so organize their business as to lead to the greatest expedition in the movement of freight.' The rest is familiar history, but let us briefly review it:

"On April 11 last, in response to this call, the chief officers of substantially all of the railroads of the country met in Washington. May I say, without misunderstanding, that this was the first of the great industries to come together to organize to support the country in the effort of the war—first, evidently, because of the prime importance of transportation in this great struggle and possibly, also, because of an inquiry in the minds of the council to know whether private operation of the railroads could meet the supreme test of this experience.

"I think it has done so, and, unless denied those opportunities to adjust itself which are necessary to all forms of industry and service in time of war, I am sure it will continue to do so.

"The product of this meeting was expressed in this resolution:

"'Resolved, That the railroads of the United States, acting through their chief executive officers here and now assembled, and stirred by a high sense of their opportunity to be of the greatest service to their country in the present national crisis, do hereby pledge themselves, with the government of the United States, and with the governments of the several states, and with one another, that during the present war they will co-ordinate their operations in a continental railway system, merging during such period all their merely individual and competitive activities in the effort to produce a maximum of national transportation efficiency. To this end they hereby agree to create an organization which shall have general authority to formulate in detail and from time to time a policy of operation of all or any of the railways, which policy, when and as announced by such temporary organization, shall be accepted and earnestly made effective by the several managements of the individual railroad companies here represented.'

"The railroad war board was the outcome. The deliberations of this board have, from the first, been directed to the obvious necessity, as the traffic of the country has multiplied, of increasing the efficiency, and consequently the capacity, of the plant. It was at once apparent that, as conditions matured, sacrifice of convenience by the public must come, followed by sacrifice of opportunity in the routine commercial life of the country, but neither of these was immediately necessary and this, fortunately, gave to us who carry the first opportunity.

Appeal for Greater Efficiency.

"The first action was expressed in a call for more intensive use of the existing facilities, for expedition of traffic, for more car miles and more locomotive miles, per day—for more tons per loaded car and more tons per train; for the speedy repair of power and cars in bad order and the maintenance of the least possible number of these in shops or on repair tracks. The standards set were based upon calculations that by quicker repairs, quicker movement and heavier average loading of cars, a total of 779,000 cars could be added to the available freight equipment of the country; by a reduction from 15 to 10 per cent. of the average number of locomotives under repair, an addition of approximately 3,325 locomotives could thereby be added to the number in service. We are requiring detailed reports from the lines, showing results accomplished, and splendid progress has been made toward the goal for which we are striving.

"The average capacity of all box cars in the country is 39.7 tons, but the most recent figures show that the average load is only 17 tons, indicating that only 43 per cent. of the box car capacity of the country has in the past been utilized. This unused space pointed at once to the most available opportunity for increased capacity and this led immediately to the call upon the shipping public for help and co-operation and brought about immediate and gratifying response. Heavy loading of cars has come to be the part of patriotism.

"We have urged the minimum use of equipment for company loading and the prompt release of cars in company as well as commercial service, and our inspectors are travelling the country to see that these things are being done as efficiently as the human agents upon whom we have to rely will do them.

"The result of all this effort has been that, without noticeable increase in power or cars, tracks or terminals, approximately 25 per cent. more freight traffic has been handled than last year, and the performance, I think, has been better than in the competitive confusion of a year ago.

"In addition, the direct war needs of the government have been well served—72 new towns and cities, some of them having a population of 40,000 men, have sprung into being almost overnight—the camps and cantonments of the army—requiring thousands of cars of lumber and other material to build them, and the prompt daily movement of approximately 2,500 cars of food and supplies to feed and maintain them—the tremendous energies of the shipbuilding programme of the government have been served—the movement of foodstuff required at home and by our allies has been co-ordinated and reduced to smooth and efficient operation; coal has been moved in greater volume than ever before, and the handling of troops to camps and to ports of embarkation under the admirable operation of the voluntary censorship of the press has gone on—as it were, in the silence of the night—with the reticence required by the military situation and without noticeable disturbance of the ordinary passenger traffic of the country.

Pooling of Equipment.

"Much else has been accomplished, with most of which you are familiar, but the pooling of the equipment of the country, with the power which has been so broadly exercised as to move, to date of most recent reports, approximately 160,000 empty cars from one line or part of the country to another to relieve shortage or distress, has perhaps done more than anything else to increase the capacity of the plant as a whole. In my judgment, we will not again return to former methods in this matter, but in no other way has the single purpose of the railroads to consolidate their activities for the benefit of the country been so clearly

shown as in the prompt response and obedience shown in routing empty cars under these orders. Empty mileage means added expense, and at a time when expenses are almost wholly out of control, it has been hard to incur; when cars for local needs have been scarce and hard to provide, it has been harder upon the individual roads and upon the shippers on its line to let them go, but the larger needs of the country, as given us by department or committee at Washington, or as we have seen them, have governed and cars ordered to competitor or connection have been delivered as directed without delay.

"The railroad war board felt that before calling upon the public to make sacrifices in its normal transportation rights and privileges, the railroads should prove that they had made the first response and, as far as the means within their control would permit, had improved their own efficiency, already, as comparative statistics demonstrate, the most efficient transportation machine in the world, and with lower rates and higher costs of operation, the increase in traffic handled gives ground to hope that thus far we have done our part. Without doubt much more might have been done, and the anxieties of the future point to much that must yet be done, but in passing judgment you must remember that the life of this machine comes from the human hands that operate it and in the complex conditions about us, these hands sometimes fail us and at times they falter in the struggle with the overload of the plan; you must also remember that months ago the intense industrial activity of the country, following the recall to Europe of thousands of able men, began to deplete our mechanical and repair forces; men have left us to volunteer and thousands have been drafted; the military regiments of France were recruited from our best men, and now the problem of proper maintenance of track and equipment and, indeed, of the efficient operation of trains, has become one of the serious anxieties of every railroad officer in the country.

"Railroad critics have not ignored this increase in efficiency; we were told by some that these measures were only long-deferred reforms which would now reward the treasuries of the companies with overflowing net earnings, and we have been harshly asked by others why these things were not done long ago.

"To the first, the answer is that some of these more important measures were adopted knowing that to do them would add instead of decrease expense, but were necessary to manufacture more transportation, and the savings accomplished by others have been long since absorbed by the mounting costs of operation. To the others, the answer why many of these things that have increased the volume of transportation have not been done bofere is found in the response of employees and officers under the patriotic cry of the hour, the magnificent response of the shippers of the country to the same call and the loosening and, I make frank to say, the disregard by both shipper and railroad, in the common good, of some of the restrictions which have, in the exercise of the arts of peace, been imposed upon this over-regulated industry.

Co-operation by the Public.

"We have appealed to the public, and none better than the members of this League know how effective has been the response. Heavier loading of cars has been everywhere accepted and practised; tariff minima have been disregarded and our records are showing continued increase in the loading of cars to maximum capacity. Immediate progress was shown in the prompt loading and release of cars, and the gratifying increase in the capacity of the railroads is directly attributable—indeed, could not have been accomplished without this generous co-operation. It is a pleasure to make acknowledgment of this in behalf of the railroads of the country.

"These, briefly, are the things that together we have done, and measured, not in terms of sacrifice one for the other, but in combined effort for the good of the country. We may conclude that much has been accomplished."

As a matter of fact, however, though the railways of the United States did not actually come together until the eve of the declaration of war, they were making preparations for such a development as far back as November or December, 1916. They had a feeling that the President might, in the event of war being declared, adopt some such course as that followed in Great Britain and accordingly moved to forestall such a contingency.

Just what had been done in England is lucidly explained in a pamphlet by F. A. McKenzie on "British Railways and the War," from which the following paragraphs are excerpted:

"In 1871, following the Franco-Prussian conflict, the British Government took power by Act of Parliament to acquire by Royal Proclamation any or all of the railways of the United Kingdom in time of war. A committee of railway managers was already in existence to deal with such a situation. This body, known first as the War Railway Council and afterwards as the Railway Executive Committee, was to act as a central organization, to give instructions, and to co-ordinate the activities of the different railways in war time. Working in co-operation with it was the Engineer and Railway Staff Corps—a volunteer organization of railway workers whose purpose was to develop schemes, methods, and personnel for the War Railway Service. It was composed of general managers of the leading railways, leading contractors, engineers, and other railwaymen.

"Month by month, and year by year, the Staff Corps worked out schemes for the utilization of our lines under any contingency. It planned how to carry out great movements of troops from one part to the other. Few, if any, then contemplated more than handling bodies of men running into a total figure of from four to five hundred thousand. When, later, the needs of the war raised the total to ten times the old maximum, the plans proved to have been so soundly laid that the greater demands were easily met.

"The Railway Executive Committee and the Railway Staff Corps, working in conjunction with the Director-General of Military Transport, gradually completed, during the years preceding the war, their plans of operations. These covered more especially the movements of a British expeditionary force to its embarkation port, the quick concentration of men at any point to repel an invading army, and the evacuation of invaded districts. By 1912 all was in readiness. Every railway manager had in his safe a confidential, sealed, unopened document, detailing a scheme of mobilization. In it he was told exactly what to do, the trains to be moved, their starting-points and destinations, and the entire schedule of running, if war came. So far as the operation of our railways was concerned, England was prepared.

The Meaning of Government Control.

"On the same day that war was declared (August 4th, 1914) the railways of England, Wales, and Scotland—not Ireland—were taken over by the Government. The managers opened their sealed instructions and proceeded to carry them out. It had been provided in the Act of 1871 that full compensation should be paid to the owners for any loss incurred. The Government, however, did not at the beginning announce any terms with the companies. This was left for a later date. Government control, it is important to note, did not mean Government ownership. The lines remained the property of the companies. They retained the management of their own concerns, subject to the instructions of the Executive Committee, and the whole machinery of administration went on as before. The sole purpose at the beginning was to facilitate the movement of troops. But as the war developed, as economy became more and more essential, the scope of the Railway Executive Committee, now in supreme control, became greatly extended.

"The terms under which the railways were being taken over for the period of the war were published in September. The Government guaranteed to the proprietors of the railways that their net revenue should be the same as in 1913, except when the net receipts for the first half of 1914 were less than the first half of 1913; in that case the sum payable was to be reduced in the same proportion. The entire Government traffic—men and freight—was to be carried without any direct charge being made for it or any accounts rendered. This plan was considered satisfactory by both sides. In the majority of cases there had been a reduction of earnings in the first half of 1914 over the previous half-year, and companies were contemplating a still further reduction. The interests of their shareholders being assured, they were able to devote themselves to the work of economical and efficient distribution, quite apart from the usual financial problems. The one weak side of this agreement was that it made no allowances to cover increased interest payments on account of new investments, new capital expenditure since the war began. This point was afterwards met by an arrangement that the Government should pay interest at 4 per cent. on

all new capital invested by the railways since August 4, 1914, on new lines, branches, terminals, equipment, or other facilities put into use since January 1, 1913.

Some Effects of Combined Action.

"The conclusion of the financial agreement between the Government and the companies automatically brought about a great economy in the system of railway accounts. Hundreds of clerks had been employed at the Railway Clearing House at Euston, London, in dissecting payments covering different lines, so that each line should have its proper share. This work was no longer required. The vast amount of competition maintained before the war for traffic at once ceased. British railways, particularly those competing with others for business of particular towns, had maintained staffs of canvassers not only for freight, but even for passenger traffic. Their competition went so far that, in some cases, if it was announced that a visitor was coming to one of the Midland towns he would promptly receive at his home address callers on behalf of rival railways asking him to buy his ticket by their line. There was still more acute canvassing for goods traffic. All the great companies had extensive publicity departments, which, by posters, pamphlets, and newspaper articles, sought to bring home to people generally the attractions of their lines. In the years before the war this publicity had tended to grow more and more elaborate and more and more costly. Now it was swept away at a stroke. The weekly traffic returns of the different lines were no longer required, and so ceased to be published. The reports of the companies were cut down to a bare minimum, and in many cases even these reduced reports were not sent to the shareholders unless they specially asked for them. The tickets issued by various companies for the same points were made for a time available by the trains of any railway running between the points to which the tickets were issued. This concession was shortly afterwards withdrawn.

Further Benefits of the "Pool."

"Among the most important economies in handling traffic was, first, the establishment of the common user of railway companies' open goods wagons. Under the old system the wagon received loaded by one company from another had to be promptly returned to the owning line, even though there was no freight for it on its return. Under the common user arrangement it became available for loading in any direction, thus reducing the haulage of empty vehicles to a minimum. This system of pooling luggage cars came into force on January 2, 1917. The pool did not include the very large number of privately owned wagons, estimated from 600,000 to 700,000, which are a distinct feature of British railways; but the benefits of the pool were soon seen to be so real that steps were pushed forward to take over the control of the private wagons also.

"A minor economy introduced early in the war was an agreement by the railways to accept each other's 'paid' and 'to pay' stamps and labels on parcel traffic. This saved very much labor, and it led to a further development in January, 1917, when the Railway Executive Committee announced that from a given date 'the carriage charges for all descriptions of traffic for conveyance by passenger train or other similar service must be paid by the sender at the forwarding station.' The whole system of bills and accounts for passenger goods traffic was thus swept away. Some reformers even proposed that the railways should go further, and insist upon the prepayment of all small traffic by goods trains. Still another step was a decision that claimants for the loss or damage of goods should be dealt with by the company on which the claim was made without any division, such as had formerly taken place, of the amount paid between the companies concerned in the route over which the traffic had been conveyed.

"The saving in printed matter was so extensive that at least one large company was able to turn out many tons of paper which had been stored for office use and to put this on the market at a time when paper was scarcest."

What has been accomplished by the co-operating railroads in the United States, together with the difficulties which are still confronting the carriers there, is set forth by Fairfax Harrison, Chairman of the Railroads' War Board, in a special statement issued last month. Mr. Harrison naturally speaks from the standpoint of the companies and his plea is for patience on the part of the government and the public and greater co-operation. He says:

"The transportation situation is becoming the subject of growing public uneasiness and agitation. Those responsible for the operation of the railways realize that transportation conditions, unless more vigorously dealt with by all concerned, will grow more acute. Therefore, the railroads' war board believes that it should make to the public a frank statement and explanation of the facts and indicate some of the means which it believes should be used in dealing with the situation.

"Both the public and the management of the railways must courageously face the fact that under the trying conditions which will develop this winter, it probably will become impossible for the carriers to handle all the traffic which the shipping public can offer. The number of unfilled requisitions for freight cars, after having largely declined between May 1 and September 1, in spite of a vast augmentation of traffic, showed an increase on October 1 and a further increase on November 1.

Main Cause of the Trouble.

"The main reason, of course, why the railways are having such great difficulty in handling all the traffic is that there has been an enormous increase in its volume, and that this still continues. Statistics which have just become available show that in the months of April-August 1917, inclusive—those being the first five months after the entrance of the United States into the great war—our railways handled 16 per cent. more freight traffic than in the same months of 1916, which year broke all records up to that time. The traffic handled in these five months of 1917 was 50 per cent. greater than that moved in the same months of 1915; and, in fact, exceeded the total traffic moved in any entire year prior to 1904. When the statistics for September are available, they will show that in the six months ending with that month the railways handled more freight traffic than in any entire year prior to 1907. Perhaps the most remarkable figures are those regarding the movement of coal. In the six months May to October, inclusive, there were moved 150,000 more carloads of anthracite than in the same months of 1916, an increase of 18 per cent., and 751,000 more carloads of bituminous and lignite coal than in the same six months of 1916, also an increase of 18 per cent.

"A total of 116,000 carloads of freight have had to be hauled to the national army and national guard camps; and up to the time of the latest report over 17,000 carloads of freight had been handled for the Shipping Board.

"The railways are still moving a total freight traffic surpassing any ever known before, and it should be borne in mind that they are doing this with almost no greater facilities than they had two years ago and under conditions which prevent them from materially increasing their facilities.

"Another important phase of the situation to which attention should be called is that the railways this year have had to handle the largest passenger business ever known. This has been a serious obstacle to needed reductions in train service. In addition, between August 1 and November 12 they transported 1,200,000 soldiers to training camps, cantonments and points of embarkation. This troop movement involved the use of approximately 2,750 special trains. Of course, this large passenger traffic and troop movement have complicated matters and increased the difficulty of moving the freight traffic. Large troop movements are still being made; and the railways are moving to the training camps and cantonments about 75,000 carloads of supplies a month.

Much More Service Secured.

"These facts are sufficient to explain the situation. The railways have secured much more service from every track, every car, every locomotive, than ever before, and the fact that the unfilled requisitions for freight cars amounted on November 1 to only 140,000, in spite of the tremendous increase in traffic, reflects great credit upon their performance.

"Upon this record of actual achievement the railroads rely upon the support of public opinion, despite much of what Commissioner Clark of the Interstate Commerce Commission has characterized as 'unfair criticism from people who are trying to direct attention to alleged faults of others in order to avoid having their own shortcomings and evil doings brought into the limelight.'

"But the public naturally is not so much interested in what the railways have done as it is in what they probably will be able to do during the coming months. The course of develop-

ments is forcing those responsible for their operation to anticipate that probably they will become unable to provide transportation for all the classes of commodities which they have been moving. The situation is similar to that in other industries. The steel manufacturer cannot produce all the steel needed; the coal mines cannot produce all the coal needed, and the farmers have not produced all the wheat needed, and the farmers faced by similar conditions, under the sanction and direction of the government, are reducing the amount of fuel and materials furnished to business concerns producing things not essential to carrying on the war. The time may be almost here when it will be necessary to distinguish in railway transportation between things that are essential and things that are not essential.

"The railroads war board has, therefore, furnished to Judge Lovett, the government Director of Priority, and Dr. Garfield, the government Fuel Administrator, at their request, a list compiled by a committee of railway traffic officers showing commodities the transportation of which is regarded as non-essential under present conditions. One part of this list is made up of about 450 commodities whose transportation it is believed could be dispensed with without any considerable inconvenience to the public. Another part contains about 75 commodities which it is believed the public could dispense with, but not without inconvenience. It is for the priority director and the fuel administrator to determine how many of these commodities shall be denied transportation.

Railways Can Do the Work.

"We have no doubt that if non-essential commodities are eliminated, the railways can transport all commodities required by the government in carrying on the war and by the people for their subsistence and comfort. Furthermore, those responsible for the operation of the railways do not wish to be understood as conceding that the transportation lines have reached the limit of their capacity. They are still increasing the amount of traffic they are handling, and with greater exercise of skill and energy by railway officers and employees, and increased co-operation from the shipping public and government officials, including the regulating authorities, the freight service rendered can still be largely augmented. The railroads' war board is issuing to railway officers and employees and to the public detailed suggestions in addition to those already made as to methods by which this result can be accomplished, and we have no doubt that these will be received and acted upon as similar suggestions heretofore made have been.

"The difficulties with which the railways were confronted at the beginning of the war were very great. Some of these have been overcome. The increase during the first five months of the war of 16 per cent. in freight traffic handled with practically no increase in locomotives or cars was equivalent to the addition of 5,000 locomotives and 360,000 cars to the number in service. The difficulties now confronting the railways are even greater than those they faced at the beginning of the war. They cannot get anywhere near all the men they need; they have lost many of their most efficient officers and employees because of their enlistment in the service of the government or for other reasons, and the new men, of course, are not as efficient as those we have lost. It is impossible for the carriers to get the materials and new equipment they need because it is thought by those in authority that the national welfare demands that the output of the iron and steel mills and of the railway equipment concerns be devoted to other purposes. Great, however, as are the difficulties which the railways are encountering in their efforts to render adequate service, we believe that if the government and the public will be patient and will continue to give the management of the railways their co-operation, most of these difficulties will be overcome."

Despite the plea of the Railroads' War Board, it would appear as if conditions in the United States were drifting steadily towards government operation of the railways. Already it is announced that it has been decided to operate all lines east of Chicago as a unit, which would indicate that the day is fast approaching when the government will take over and operate all the roads in the country on similar lines.

The situation in Canada is somewhat different. There is not yet the same serious congestion of traffic as exists in the United States, though conditions are none too good. The formation of the Railway Association for National Defence is a step in the right direction, but whether it will accomplish all that is hoped is doubtful. It is as yet too early to criticize, though it might be pointed out that the Minister of Railways and Canals, in suggesting the organization, had in mind the hearty co-operation of all the lines for the purpose of giving the public an efficient service. So far action taken has been in the direction of reduction of service. Whether or not anything is being done to co-ordinate effort is doubtful. There cannot, of course, be any criticism of the reduction of expenses through the cutting out of duplication of trains or unnecessary hauling of cars. In the handling of freight traffic, however, there should be unrestricted reciprocity between the different roads.

BUILDING UP EXPORT BUSINESS.

How an Electrical Firm in Montreal is Succeeding in Capturing a Share of the Export Field.

It is always a pleasure to record in these columns instances of initiative and push on the part of Canadian manufacturers in reaching out for a share of the export field. In this instance reference is made to the Duncan Electrical Co., Ltd., of 1665 St. James Street, Montreal, who have, by the application of steady persistence, coupled with experience and expert knowledge of conditions in, and requirements of, different foreign countries, built up a satisfactory trade in most parts of the world in their manufactures.

One line, originally manufactured specially for the South American market, where they have sold very large quantities, has since been shipped largely to allied and neutral continental Europe. To meet the demands from many parts of the world for a former German product the company are now making what are known as "Tower" bolts, which they now export in large quantities.

The company recognized that, to seriously interest a foreign buyer, one essential was to talk to him in his own language, and their lists and pamphlets are, therefore, printed in English, French, Spanish and Portuguese, and in some instances where the article is particularly interesting to that country, in Russian also.

In the beginning some doubts were expressed as to the possibility of competing successfully with the large American factories, but increased production, improved methods and a little extra "ginger" disposed of these doubts in short order by that best of proof, "results."

The export department was suggested, organized and developed by Mr. H. N. Howlett, and remains under his control.

OVERHAUL SPRINKLER EQUIPMENTS.

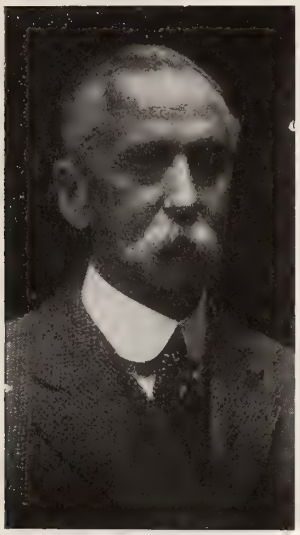
Most Desirable that Manufacturers Should Have Their Systems in Perfect Working Order.

Now is the time for the owners and managers of manufacturing plants and mercantile establishments to carefully examine their automatic sprinkler equipments and make sure that they are in perfect condition to withstand the rigorous winter weather which will soon be due. A sprinkler installation which is not in working order all the time is a delusion and a snare, for it leads to unwarranted dependence being placed upon it, thus possibly inducing laxity as regards other means of fire extinguishment. Constant vigilance will be repaid by efficient service when an emergency occurs. The C.M.A. Insurance Department will be very pleased to send to any member interested details of precautions which should be taken to provide against the breakdown of a sprinkler equipment during cold weather.

Personal Paragraphs

A BRIEF SPAN OF OFFICE.

After holding office as Lieutenant-Governor of New Brunswick for a scant four months, the Hon. G. W. Ganong, head of the widely-known firm of Ganong Bros., Limited, of St. Stephen, N.B., fell a prey to a mortal illness and passed away at his home in St. Stephen on the last day of October. The late Mr. Ganong was one of the most prominent manufacturers in the Maritime Provinces, and during his lifetime he had succeeded in building up a business which enjoyed an international reputation. In fact, the name Ganong had become very largely a household word.



The late Hon. G. W. Ganong

The late lieutenant-governor was born in Springfield, King's County, on May 22, 1851, the youngest of a family of six. For a time he taught school, intending to study medicine, but in 1873 he entered into partnership with his elder brother, the late James H Ganong, and together they formed the business which has grown into the present company. Of this company, the deceased was president and controlling stockholder.

Mr. Ganong first entered politics in 1896, when he was elected to the House of Commons as a liberal-conservative. He was re-elected in 1900 and 1904.

In commercial life he was a figure of prominence throughout the Dominion, through his connection with the business of Ganong Bros., but he was also largely interested in the St. Croix Soap Mfg. Co., also located in St. Stephen.

A YOUTHFUL PRESIDENT.

Walter C. Teagle, the new president of that famous corporation the Standard Oil Company of New Jersey, has been for some years, as president of the Imperial Oil Company, a powerful but silent force in Canadian industry. It has been so characteristic of him to shun publicity that when his appointment to the presidency of Standard Oil became known, many people were suprrised to hear that he had been for some time a resident in Canada. The Teagle family, to which this thirty-nine-year-old corporation head belongs, is well known in the oil industry. His maternal grandfather, Morris B. Clark, was the first partner of John D. Rockefeller. His father was a member of the oil firm of Scofield, Shurmer & Teagle. When he graduated in chemistry from Cornell University, he wanted to accept a position as instructor at the college, but Teagle, Sr., put him to work firing an oil still at nineteen cents an hour. He obtained first-hand practical knowledge of every phase of oil refining, and with his knowledge of chemistry, he soon became vice-president of the firm with which his father's company was merged. He attracted the attention of Standard Oil executives and was sent abroad to study the oil industry of England, France, Germany and Roumania. On his return to the United States he was made head of the export department. His subsequent rise to the head of the Imperial Oil Co. and to the vice-presidency of the Standard Oil Co., of New Jersey, took but very few years. He organized the International Petroleum Co. in order to get for Canada a supply of crude oil from Peru. He built a fleet of tank steamers and bought and merged a number of Peruvian oil companies. In three years he increased the annual capacity of the Imperial Oil Company's refineries from 2,000,000 to 6,500,000 barrels, and another large refinery is nearly completed at Dartmouth, N.S.

NEW INDUSTRIAL COMMISSIONER.

An appointment of particular interest to manufacturers and others interested in the development of the country's industries and resources is that of C. Price-Green to be Industrial Commissioner of the Canadian Northern Railway System, with headquarters at Toronto. The appointment is made in anticipation of the industrial reorganization and development which will follow the conclusion of peace, in view of the great number of industrial opportunities on the lines of the Canadian Northern System. The aim of the department is to locate industries and to develop the natural resources along the company's lines. Mr. Price-Green joined the staff of the Canadian Northern at Toronto in 1906, to take charge of the passenger business of the then newly-opened line between Toronto and Parry Sound. He has travelled extensively, especially in the outlying sections, and has an intimate knowledge of the Dominion and of its resources.

NEW RAILWAY OFFICIAL.

The vacancy caused in official ranks of the Canadian Northern Railway by the resignation of Mr. L. C. Fritch has now been filled by the promotion of Samuel J. Hungerford to the office of general manager of eastern lines for that company. Since May 1st, 1915, Mr. Hungerford has been in charge of all rolling stock of the Canadian Northern Railway System. Born near Bedford, Quebec, July 16, 1872, he was educated in the common and high schools, and in 1886 became machinists' apprentice of the South-eastern and Canadian Pacific Railway at Farnham, Quebec. From 1891 to 1894 he served as machinist at various places in Ontario and Quebec. On September 3rd, 1894, came his first official appointment, that of chargeman for the C.P.R., at Windsor Street, Montreal. Three years later Mr. Hungerford was promoted to be assistant foreman for the C.P.R. at Farnham, Quebec. That post also he held for three years, when he was moved to the locomotive foremanship at Megantic, Quebec. In the following year, 1901 he was made general foreman at McAdam Junction, N.B., and continued with the C.P.R. in various capacities, gradually rising in rank until 1910, when he joined the Canadian Northern Railway at Winnipeg as superintendent of rolling stock for the C.N.R., and Duluth, Winnipeg and Pacific Railways. On May 1st, 1915, he was moved to the head office here, and his jurisdiction extended to include the rolling stock on the 10,000 miles of trackage of the Canadian Northern. His office will be at Toronto.



Samuel J. Hungerford

Canada's Place in the Markets of the World*

The Duty Incumbent on Canadian Manufacturers of Building Up an Export Trade, which will Off-set the Unfavorable Conditions Following the War

By R. J. YOUNGE

Joint Manager, Canadian Export Association

THERE has been one predominant note throughout this Convention. All the addresses have laid stress on the one fact—that no matter what other duties we have, the first and paramount duty of every Canadian is to do what he can to win the war. Nothing that I will say would detract from this principle that is being laid down so forcibly all over the Dominion. But I would like to say that, while we bend every ounce of energy we have towards winning the war, we should not neglect the next most important thing—the conditions after the war.

This is the special duty of Canada's business men who are not in the trenches. Everyone in Canada has some duty to perform which is connected in some important way with the great war, but let me impress upon you the fact that, if for some reason or other we are not in the trenches, it becomes our particular duty to support those who are and to prepare for the conditions which will follow when the men who are fighting return home. In pointing out this and in putting these future conditions plainly before you, I am not asking of you anything that the business men in Great Britain are not asked to do, I am not asking you to take up anything that the business men of France are not asked to do, I am not asking you to take up anything that the business men in the United States are not asked to do; and I leave it to yourselves whether the business men of Germany are not at this very moment thinking and planning for after-the-war trade. In short, the business men at home in all the belligerent countries are preparing for the future.

When Munition Orders Cease.

Let me ask you three important questions—first of all in connection with the change that must come when our munition orders are finished. We have to-day in Canada one thousand factories making shells and various kinds of requirements for the war. Employed in those factories there are half a million workmen. I ask you gentlemen, and you are all business men, what is going to happen to these factories when these munition orders are cut off, as they will be some day—soon, we hope; perhaps over night.

The second question is, how are we going to take care of our returned soldiers? We will have perhaps three or four hundred thousand soldiers coming back from the front, and all the manhood there is in us tells us that our first duty as Canadians is to see that employment is offered to these men. If we do not plan some scheme now, if we allow these intervening months to pass while they are away carrying the burden in the trenches, without preparing and organizing to insure them not only welcome when they come back, but a good job which will bring them proper remuneration, we shall have failed to do our duty.

But even supposing that we have orders to fill these factories, even supposing that we have plenty of work for all our soldiers who will come home—then let me ask you how are we as a nation going to meet our national obligations after the war, unless we build up a balance of trade by greater production and wider markets? We do not realize what our national debt is going to be when the war is over. The seven and one-half million of people in Canada can only avoid staggering under that debt if, as a nation, we are able to sell more than we buy—that is the only solution for meeting our national obligation.

The Other Side of the Picture.

All that I have said to you may appear more or less pessimistic. I do not intend that it should be so, but when we think seriously of these problems which are confronting us, we must face cold, hard facts. There is another side, however, to this picture. If these conditions which we must face as business men do appear to be almost insurmountable, there is a brighter side in the magnificent prospect which we have to establish ourselves as a much greater factor in the world's markets than we have been in the past. Speaking with a few hundred manufacturers as I have in the past two years, I have been told by many that we cannot compete with the world, that our export experience before the war has taught us that money can be lost in export trade as well as made, and that when compared with the much lower-priced labor in Great Britain and much more highly specialized industries in the United States, Canada is operating under enormous disadvantages. Now, gentlemen, if I can leave with you only one idea, let it be on this very point. The President of the National Association of Manufacturers, speaking more than a year ago, said that in the enormous changes that were taking place in the world's trade, the manufacturer in the United States would reap his full harvest from those changes only if he learned now to understand that

"Old Things Have Passed Away

and all things have become new." If that is true for the highly specialized and highly capitalized manufacturer of the United States, then I say that it is even more true for the small and sometimes struggling manufacturer in the Dominion of Canada. Gentlemen, the sooner that we learn that the conditions which prevailed before the war are not the conditions that will prevail after the war—are not the conditions that will dominate the future—just so soon will we commence to appreciate our wonderful new opportunities.

When I say old things have passed away and all things have become new, I am not telling you any fancy fiction. You all know that the old channels of trade have been buried in the past, old scales of wages have passed away, the old surplus of labor has gone, old shipping conditions have passed away, old easy-going systems of taxation are gone—for your lifetime and mine, at least—old antiquated methods, party distinctions and political ideas have passed away, and all is new—new channels of trade, new sources of supply, new markets, new scales of wages, new shipping conditions, new standards of efficiency, new political ideas, making the narrow, sordid aims of party subservient to the welfare of the nation.

These changes are much more significant than they

*Address delivered at Sydney meeting, Maritime Provinces Branch, Canadian Manufacturers Association.

appear to us now. The Britain of to-day is not the same old Britain of before the war. The France of to-day is a new France. The Russia that calls for deliverance and is to-day bursting the chains that have bound her for centuries is a new Russia. The Germany that, with bowed head and broken heart, will sign the greatest Peace Treaty which was ever signed, will be a new Germany—and who will say that Canada, with the losses that she has sustained, the sacrifices she has made, and the everlasting glory which has been won for her by her sons in battle, who will say that she will not emerge from this terrible trial a new and greater Canada?

International Preferences.

There are those who believe that after the war we will have international preferential tariffs which would be of the greatest assistance to manufacturers of this country. They predict that after the war we will have first of all an inner circle for the members of the family of the Empire, a British preference operating throughout all British Dominions; a second circle just outside of that for allied countries; a third circle outside of that for neutral countries, and a fourth and almost prohibitive circle for the productions of enemy countries. For the reconstruction of our trade and our finances, what a splendid assistance this would be! and I fully believe that preferences of some kind will come; if they do, we must be ready to reap the full advantage of them.

But supposing we get no tariff preference, are we to sit down and say, just because we are not going to get a preference, we are not going to organize our natural resources and our industrial strength, to show the world what we are and what we have? After all, and I have spent a great deal of time studying this very question, I believe that what we need most is a new confidence in ourselves, and a willingness and determination of the Canadian business men to say that they want world business and that they are going to get it.

It has been surprising to see the part that Canada has played industrially in the war—in fact, it has been one of the great surprises in the war. Many of us do not realize that every plant that has been making shells in this country has undergone an experience in the widespread knowledge of new processes, in accuracy, in precision in the study and use of metals, and, above all else, actual efficiency from the management down to the meanest workman. It is a proud thing for us to know, gentlemen, that the efficiency engineers who have visited our country and inspected the munition plants here, and have compared them with the munition plants of Great Britain, have said that the Canadian plants are fully the equal of the plants across the sea, not only in the actual results, but in the efficiency with which these plants are managed. Our industrial progress since the beginning of the war has been so marked that it would have been impossible for the universities and technical schools of Canada to impart, in the course of many years, such a wealth of knowledge and experience as has been crowded into as many months.

National Action.

But all this progress will be in vain unless we can gather it up and nationalize it. Here we must take a lesson from the industrial success of Germany. Germany learned to do things nationally. Every source of production throughout the empire co-operated and took its place in the great plan which was to place her at the head of the world. Her farmers and her manufacturers, her banks, her railways, her steamship lines, and, behind them all, her government, working together to the one great end, which, had it not been inspired by Prussian militarism, would have made Germany a model for national and commercial progress. Canada must learn to act nationally, and her business men must show the way.

The share of the world's trade which will come to us depends altogether upon how we organize to get it. What is Canada doing to prepare herself for world trade? What are our manufacturers, and our banks and our Government doing to get ready for Canada's century? How much attention are you giving to this big question in your own business? Let me say to you now that unless we use these intervening months till the war is over organizing and consolidating our position, the coming of peace will find us absolutely unprepared.

We must organize at home and abroad.

We must demand national technical education.

We must increase the efficiency and perhaps the capacity of our plants. We must tell the world that we can produce, and we must seek out reliable agencies and channels of trade in every friendly foreign market to sell Canadian goods.

I am not one of those who believe that after the war we will see a great and universal trade depression. I believe that if you will analyze the manufacturing strength of the allied countries you will see to what extent after the war the allied countries must lean on Great Britain. Take staple commodities of life; with the exception of the United States, she is the only one of the allies capable of producing the manufactured products demanded by the buying nations of the world. It seems to me that after the war, when the world's stocks must be built up again—they are practically depleted now in most lines; when reconstruction must commence in Belgium, France, Serbia, Poland and Roumania—when that time comes Great Britain will only be able to fill a fraction of her orders. Demands will be made upon her by every allied country, and her own country is thirsty for goods of many varieties; but where must the surplus goods—the orders that Great Britain cannot fill—come from? There is only one outlet for those orders, and that is the North American Continent—the surplus orders must be filled in the United States and Canada, and just in proportion as we can organize now to get them ready, just in that proportion will Canada reap her share.

War Orders vs. Export Orders.

War orders are very different from export orders. War orders have been thrust upon us, and we have been commanded to use every ounce of energy that we have to increase our producton and give the armies at the front all they need. But you will not have export orders thrust upon you; they will not fall from the skies—you will dig for them, and so I say again the whole key to the situation lies in organization, and, if we do not organize, we will surely fail.

In the United States over a year ago this whole question was up for discussion; they wanted an association to lay down broad lines for export business out of the United States and to provide a practical channel for carrying out an export programme. A number of the leading bankers and business men of the Eastern States came together and organized the American International Corporation, with a subscribed capital of fifty million dollars, of which one-half was paid up. Can you imagine what a tower of strength to the United States export trade this Association is? When they required ships to take their goods to South America, and were handicapped by the high rates of shipping, the Association bought four ships and paid four millions of dollars for them. The first annual statement shows a profit of nearly twenty per cent. on paid up capital in the first year of operation.

What are the manufacturers of Canada doing in a similar direction? Two years ago an appeal was made to them to subscribe one hundred thousand dollars to establish a National Export Association. Two years have passed and only about sixty thousand dollars have been subscribed. The business of the Association is now growing so fast that we require new members and additional capital. What we need most is increased effort and support from our manufacturers themselves, and unless that effort and support is forthcoming before the war is over, the manufacturers of Canada cannot hope to reap from the new trade conditions what they are really entitled to, and what it is possible for them to get.

An Appeal for United Action.

Gentlemen, the outline I have given to you of the world situation at the present time, and what it is possible for us to do, is not complete without the appeal that I wish to make to you for this young Association. We have had so many things to encourage us in that Association that it would be a pleasure if I could tell you of the opportunities that are not only opportunities to-day, but the foundations we are laying now in Australia, New Zealand, South Africa and England; and we hope later on to plant seeds for Canadian products in France, Belgium, Italy, and last, and perhaps greatest of all, in Russia. We can only do this through united action, so that it comes back after all to the question whether the Canadian manufacturer has got faith in himself, and whether he is willing to join his fellow manufacturers in this great national movement.

I thank you most sincerely for the patience with which you have listened to me. I trust you will not dismiss this subject until you have definitely decided that the opportunities are too great to be disregarded, the duty too clear and too insistent to be thrown aside, and finally that your hearty co-operation will be given in solving this problem which we must admit is of the greatest importance to Canada next to the winning of the war.

HOW INDUSTRIES HAVE GROWN.

Results Announced of the 1916 Postal Census of Canadian Manufacturers for the Calendar Year 1915.

The postal census of the manufacturers of Canada, taken in 1916, for the calendar year 1915, just issued, shows a general expansion in the manufacturing business of the Dominion. The number of establishments in operation was 21,306, representing an invested capital of $1,994,103,272, employing 52,683 persons on salaries and 462,200 persons on wages, and producing goods to the value of $1,407,137,140 from raw materials valued at $802,135,862.

During the decade 1905-15 the number of establishments increased by approximately 34 per cent.; capital, 135 per cent.; employees on salaries, 44 per cent.; employees on wages, 29 per cent.; salaries, 96 per cent.; wages, 70 per cent.; and the value of products, 95 per cent.

The value of the products of factories in 1915 was $1,407,137,140, as compared with $718,352,803 in 1905, an increase of $688,537, while wages paid totalled $229,456,210, an increase of $95,080,285.

There were in Canada during the year covered by the statistics 65 establishments employing over 500 hands; 25 employing over 1,000; nine employing over 2,000; five employing over 3,000; and three employing over 4,000. Of these three establishments two employed over 5,000 hands.

During the five-year period, 1910-1915, the capitalization of Canadian industrial enterprises increased by $746,520,663, or about 60 per cent.

Resolutions of Maritime Manufacturers

Members of the Association in Convention at Sydney Expressed Their Views on Several Important Matters

At the Sydney Convention of the Maritime Branch of the Canadian Manufacturers' Association, held on October 17 and 18, a number of resolutions were adopted bearing on questions of vital interest to the manufacturers of the Maritime Provinces. Maritime union, the conservation of water-powers, military service and vocational training were all dealt with. The wording of the resolutions on each subject was as follows:—

Maritime Union.

"Whereas this Association views with interest the growing agitation for a union of the government of the three maritime provinces; and,

"Whereas it would materially increase the prestige and influence of these provinces in federal affairs;

"Therefore be it resolved, that the executive be instructed to approach the three provincial governments with a view to arranging a conference of delegates from their governments to discuss the feasibility of such a union."

Water Powers.

"Whereas it is to the economic interest of a country to develop and utilize its water-powers to the fullest extent, and considering what has and is being done in other provinces in Canada in this respect,

"Therefore, be it resolved, that the legislative assembly of New Brunswick be requested to appoint a commission to survey and to assist in any way toward the development of the water-powers in that province.

"Further resolved, that a copy of this resolution be sent to the premier of New Brunswick for his early consideration."

Military Service.

"Whereas the Prime Minister, Sir Robert Borden, has accomplished his task of forming a union government representing the different parties and best interests of the Dominion, seeking to bring about national unity,

"Therefore, be it resolved, that the Maritime Branch of the Canadian Manufacturers' Association, in convention assembled, give their unqualified approval of this action and pledge their support to the carrying out of the Military Service Bill and other measures connected with the all-important task of winning the war.

"Further resolved, that a copy of this resolution be forwarded to all members of the union government."

Vocational Training.

"Whereas this Association is profoundly impressed with the prime importance of vocational training if Canada is to maintain her place among the great industrial nations after the war,

"Therefore, be it resolved, that this Branch considers it imperative that the report of the commission on technical education, appointed by the federal government, be considered and immediate action be taken thereupon. To this end, we strongly urge our central executive, to take immediate steps with a view to arranging for a strong delegation, representing all the provinces, to wait upon the federal government in this respect.

"Further resolved, that our secretary send copies of this resolution to the different branches, requesting them to appoint a committee to wait upon their respective provincial governments, in order to secure their hearty co-operation in this respect."

Solving the Power Problem in Nova Scotia*

A Review of What the Nova Scotia Water Power Commission has Achieved, with Comments on the Value of Water Powers as a Means of Saving Capital

By K. H. SMITH

Resident Engineer, Dominion Water Power Branch, co-operating with the Nova Scotia Water Power Commission

I PRESUME that the work of the Nova Scotia Water Power Commission needs no special apology. The work being done is of itself sufficiently interesting and important to warrant discussion. The other day I heard a person whose age and experience entitle his opinion to considerable respect say that the Province of Nova Scotia was doing no more important work than the work of the Water Power Commission. It is, further, my own idea that where public money is being spent an account of it should be given. In the present case, both Provincial and Federal funds are being spent, though the amounts are very small as compared with other amounts mentioned this morning.

Now, I just want to say what the Nova Scotia Water Power Commission is doing.

In the first place, it got in touch with the Dominion Water Power Branch of the Interior Department at Ottawa, thereby securing not only financial assistance, but the benefit of the experience of the Federal Government engineers. A hydrometric survey was immediately established. This word "hydrometric" is not so formidable as it sounds, and simply means "water measurement." I had intended to give you a brief description of just how this work is carried out, but, due to the short time at my disposal, you will simply have to take it for granted that we are obtaining actual measurements of the amount of water flowing in various streams throughout the country at all seasons of the year. Until such records are available, no adequate estimates of water supply can be made, and the longer the period covered by the records the more reliable the estimate of water supply based upon them.

Records are Essential.

These records of water supply are absolutely essential for satisfactory estimates of water supply, not only for power purposes, but for all domestic purposes, estimating the size of culverts, and even for certain features of improvement to navigation where water for the operation of locks is required. I have in mind the proposed harbor improvements for New Glasgow, which involve a lock in the East River, and it is necessary to know whether this river will supply sufficient water at all times to operate this lock.

It is obvious that this hydrometric work can only be carried on satisfactorily under Government auspices, due to its scope and continuity.

In addition to the hydrometric work, which involves an organization of its own, surveys are being carried out to determine the profile of various streams, and the storage possibilities in certain drainage basins. There are two factors in determining available water power; one is the water supply, and the other is the head. The water supply can be estimated from the hydrometric work mentioned above, combined with the storage surveys, while the head can be obtained from the profile surveys. It might be pointed out that the topographic features which determine head and storage possibilities are relatively permanent, and can be determined more or less accurately on short notice. A satisfactory estimate of water supply, on the other hand, must be based on records extending over a long period.

Legislation tending to facilitate water power development is under consideration. Several features in connection with any proposed legislation might be considered.

Most water powers in Nova Scotia are in the hands of private parties. Moreover, any individual water power of considerable magnitude is not usually in the hands of any single individual, but in most cases a number of private interests are involved—individually small and by themselves not of great value, but collectively of vital importance to the industrial needs of the country.

Results So Far Accomplished.

The fishing and logging rights must be taken into consideration. The fishing rights, which in some cases are of ancient origin, have already given rise to a number of debates in the local Legislature, and are undoubtedly somewhat involved. So far as log driving goes there is very little now as compared with former years, and most of the lumbering throughout the province is carried on by means of small portable sawmills located near the place where the timber is cut.

Now I want to speak of the results so far accomplished by the Commission. I have had a small supply of the last report issued by the Commission sent here, so that those interested may get a copy if they have not already done so. Further copies may be obtained from the King's Printer at Halifax.

The figures I am going to give you cover the work of the Commission up to the end of September, 1916, only, as covered by the report just mentioned. The work for the year ending September, 1917, will be covered by a report now in course of preparation. The estimates of power given are based on such records of stream flow as had been collected up to the time the estimates were made, and are, therefore, subject to some revision as further records accumulate.

Power estimates covering a total of about 22,800 continuous horse-power at the point of development have been published. After allowing for losses in generation, transformation and transmission there would remain at the point of local distribution about 19,400 continuous horse-power. This is equivalent to about 127,500,000 kilowatt-hours per year, or fourteen times the present consumption in Halifax.

In addition, the report for the year ending September 30th, 1917, will probably give estimates for two or three times as much more power.

The Hydrometric Survey.

The organization of a hydrometric survey, to which reference has already been made, may be considered as a tangible result of the work of the Commission to date. This survey is giving, and will continue to give, records of more and more value.

The necessity and use for such records, not only for water power purposes, but for many other purposes, has already been mentioned. The value of the preliminary power reports,

*Address delivered at the Sydney meeting of the Maritime Provinces Branch of the Canadian Manufacturers Association.

as issued by the Commission, is possibly more obvious to the average citizen. These reports not only attract attention to the water power resources of the country, but also serve as a basis for legislation, and, in the case of actual development, obviate the expense of further preliminary surveys and investigations.

All I have said previously is predicated on the assumption that it is desirable to use water power where available. No doubt this might be taken for granted, but it will do no harm to briefly outline several reasons why such is the case.

In the first place, there is the matter of economy. Water powers are not usually developed unless they can produce power cheaper than any other source of power.

The economy of water power as compared with other sources of power will become increasingly great as time goes on, due to the depletion and consequent rise in cost of other sources of power. In fact, certain water powers, whose development costs are now prohibitive, may, for this reason alone, ultimately become capable of economic development.

However, there are other reasons, which I consider of a moral nature, and therefore having more weight than mere immediate financial considerations. There is a duty to develop water powers wherever it is economically possible to do so—you notice I emphasize the word "economically"—in order to save coal, gasolene, etc., which are limited as to quantities available and are necessary for other purposes. The use of coal, natural gas, or petroleum products for power purposes is analagous to using capital, whereas the use of water power is like using interest only, since the water power is not diminished by use. The saving is, therefore, twofold, since by utilizing water power we are not only tapping an unused source of energy, but a source which is itself not diminished by use.

Conservation of Coal.

Let me give you an example. Prior to the war France consumed 60,000,000 tons of coal per annum, of which 20,000,000 tons were imported. Since the war a water power survey has been made, with the result that from 6,000,000 to 10,000,000 h.p. has been located. The development of 6,000,000 h.p. will represent an annual coal saving of over 20,000,000 tons, or more than the total amount imported before the war.

I also have here a quotation from the *Electrical News* of October 1st, 1917, which I will read to you:

One of the most important results of the great war in Europe has been to accentuate the need for economy in every walk of life. This is just as true in engineering as in any other field, and every natural resource must be conserved to make up for the wastage of war. This is particularly the case with the world's fuel supply. Coal and oil resources are gradually tending towards exhaustion, and it has become a duty on the part of the engineer to substitute other sources of power. Water power, as present in great rivers and reservoirs of our Dominion, is inexhaustible, and while its development frequently demands a large outlay of kilowatt produced, such outlay has the great advantage of helping to conserve the coal and oil supply for the use of the Allied navies, and for those industries in which the use of such fuel is vital.

The matter of bringing electricity to the farm is another important reason for the development of water power, for probably only in this way can electricity be supplied to large rural areas. Surely there is no more worthy object than that of giving the farmer all the advantages of electricity, not only from the standpoint of increased efficiency in his work, but also to make agriculture more attractive in every way. Almost every man who has spoken here to-day has urged the necessity of encouraging agriculture, and while you gentlemen are primarily interested in industrial activity, I think you realize that satisfactory industrial conditions depend upon prosperous agricultural communities, from which the large demands for the necessities of life in the industrial communities may be supplied regularly and at reasonable rates. In certain sections of Ontario to-day, where the farms average three to a mile, electricity is being supplied to them.

If I might be allowed to make suggestions to the Canadian Manufacturers Association, I would suggest, in the first place, that it not only support the Government in all efforts made to remove every possible barrier to the successful and economic development of existing water powers, but also urge the Government, where necessary, to further action.

Industrial Power.

In the second place, it should do everything possible to increase the demand for industrial power. Hitherto the demand for power in this part of the country has been comparatively small, too small and too scattered, in fact, to warrant the development of some of the larger and most economical water powers. Having established the fact that water powers do exist, their development must go hand in hand with demand for power. Unlike steam or other power generating plants, the greatest cost in the generation of power from water is capital cost. It is, therefore, economically impossible to make large capital outlay for hydro-electric plants, unless there is a market for all or the greater part of their output. Fortunately, Nova Scotia has a number of small and medium-sized water powers which can economically be developed to meet moderate demands for power, and used in conjunction with other development to excellent advantage when the power demands warrant further developments.

In this connection it might be noted that, practically speaking, distance is no barrier to the transmission of electrical energy, providing a large enough load is available and sufficiently well distributed. For example, in Southern California power is transmitted a maximum distance of 548 miles.

The chairman has placed a note before me asking me my opinion of the Cape Split tidal project. I can only state that I am not now in a position to discuss this project. So far the only action taken by the Nova Scotia Water Power Commission in this matter was to send an engineer, at the request of the Government, to view tests made of an experimental motor similar in type to those which have been considered for the Cape Split project. Dr. Cutten is present, and can no doubt give you some information with regard to the project.

Discussion.

MR. BARNSTEAD: Could you tell the meeting how much money is being spent on this work in Nova Scotia?

MR. SMITH: The last annual appropriation by the local government was $4,000. The total expenditure to date by the province, covering a period of about two and one-half years, has been between nine and ten thousand dollars. Of course my own salary and expenses are paid by the Federal Government, which also supplies the necessary field equipments, so that the total expenditure is at least double the amount given above.

It might be noted that much better results will be obtained by distributing the available funds over a period of years than by spending an equal amount in a short time.

In certain sections of Western Canada we have records extending over periods of ten or fifteen years, while in parts of the United States there are records covering much longer periods. In Nova Scotia we have records covering only a little over two years at the most.

The Iron and Steel Industry of Canada

Notes on Its Present and Future Position*

By D. H. McDOUGALL

General Manager, Dominion Steel Corporation

IN reviewing the iron and steel industry in Canada, a clear distinction must be drawn between the position during war time, and the position that may be forecast after the war.

The present condition of the steel and iron industry is one of artificial stimulation, brought about by the action of numerous temporary factors, prominent among which are: Extraordinary demand for munitions steel; increased cost of transportation, accompanied by congested railroads, and shortage of shipping; an unparalleled coal shortage; and a severe and increasing shortage of labor.

These factors, all abnormal and arising out of war conditions, have rendered temporarily obsolete all hitherto accepted standards of economics, and they have been accompanied by an increased cost of living, large increases in wages, and increases in the selling prices of steel and steel products. No one can say how far these extraordinary conditions will extend, or how long they will last, but some day the world will resume its normal course, and the laws that govern normal times will again operate.

Therefore, in considering the after-war situation of the Canadian steel industry, we should see what the permanent essentials of a successful steel industry are, apart from present and evanescent conditions.

Factors that favor success and permanence in steel and iron manufacture are:—

Geographical location, giving cheap access to world markets, and opportunities for the cheap assemblage of raw materials.

Close proximity of metallurgical coal, iron ore of good grade, and limestone deposits of suitable quality. All these raw materials should be accessible in large quantities, and so placed as to render mining costs and transporation reasonably cheap.

General conditions favoring the manufacture of steel in large tonnage.

A review of the iron ore and coal deposits of Canada will show that such a combination is to be found in very few places in Canada, and that already large steel and iron works exist at the localities where the manufacture of iron and steel is permitted by natural conditions to rest upon a permanent and commercial foundation.

The location of iron and steel plants in all parts of the world has been primarily determined by the proximity of coal, and it does not seem probable that any steel plant can exist and pay profits in normal times which has not to hand a plentiful and inexpensive supply of metallurgical coal. It is perhaps hardly an exaggeration to say that the steel industry is always an outgrowth of a coal mining industry.

Present conditions favor the commencement of small war industries. For example, the time is opportune for the opening up of small and easily accessible coal areas, the operation of which in normal times was not profitable; and in the same way, small smelting plants and small works for making munitions have been commenced and successfully worked because of the unbalanced state of demand and supply. These passing conditions, on the other hand, act to the disadvantage of large and long-established concerns, or at the most they offer merely an opportunity to get rid of the load of debt that is the legacy of the depression that preceded the war and persisted for some time after hostilities commenced.

After-war conditions will eliminate most of these small ventures, and in the days of financial stress that are surely coming, the mainstay of industry and the hope of the country will be the large and long-established companies, who, if they are wise, will have stored financial reserves and expended profits on rehabilitation of plant, as a safeguard against the future.

Applying these general principles to specific cases, it would seem advisable that the energies of the country should be concentrated on ensuring the future of the large steel works on Sydney Harbor and on the Great Lakes, and that these existing works should be looked to for the production of steel and iron in large quantities, because in these places only is there available a sufficient quantity of coal, iron-ore and limestone.

For the treatment of steel in small quantities to produce tool-steels, crucible-steel and special alloyed steels, the electric furnace has a future, and industries of this kind will probably increase in the populous parts of Quebec and Ontario.

It is also advisable that any increase in the rolling and forging capacity of Canadian steel works should take place at the large and established plants referred to. These plants have hitherto regarded the manufacture of rails as their chief activity, but in the future, and with a view to after-war conditions, it seems probable that the rolling of ship-plates and other commercial shapes will become necessary. It is self-evident that the manufacture of finished steel products can nowhere be so satisfactorily and economically carried on as at the existing plants.

Considering particularly the question in what way it may be possible to obtain some considerable increase in the production of iron and steel in the future, that is, after the war, the first point to be determined is: Allowing for the rolling in Canada of steel shapes and forgings now finished outside of Canada, for all the export business obtainable, and for all Canada's own requirements in iron and steel, what tonnage of iron and steel over and above the existing capacity of Canadian works will be required?

Summarizing, and applying these principles, it would appear that the Canadian steel industry should be guided towards two main ends, namely:—

That the present abnormal demand for steel should be supplied as far as possible by the extension of existing plants.

That these existing plants should prepare to enlarge the variety of their finished products.

That should it then appear there was a necessity for greater production of iron and steel such as to require new plants, these plants should comply with the factors that have already been named as requisite to commercial permanence, and as giving ability to compete in world markets.

By following along these general lines, the existing plants will be extended, rehabilitated and modernized, and given an opportunity to accumulate financial reserves to carry them successfully through the troubled days ahead, and they will be placed in a position enabling them to enter world markets, and to compete with other countries, particularly the United States.

*Canadian Mining Institute's Bulletin.

United States Import Restrictions

Explanation of the Measures That Have Been Taken to Control Imports into the United States, with Instructions as to How Canadian Manufacturers can Deal with the Situation

Published by the Tariff Department

ON November 28th, 1917, the War Trade Board, Washington, issued a statement on the new United States War Measures Restrictions affecting importations into that country. This statement pointed out that for some months exports from the United States have been controlled by the War Trade Board, and that hereafter the War Trade Board would exercise similar control of the principal items of importation into the United States. The announcement of the War Trade Board explains this matter as follows:—

"Such control of imports was made effective by the allied Governments many months ago, the necessity therefor having become obvious if the resources of each were to be most effectively utilized for national and international demands. With the organization of the Bureau of Imports of the War Trade Board the requisite machinery has been supplied for increasing the importation of certain indispensable commodities produced abroad. The supply now coming forward to this country is limited by reason of export embargoes imposed by foreign powers controlling the territory in which such materials originate. Such action was made necessary because of interference with normal production, as well as the extraordinary consumption occasioned by the war. Among notable examples of such materials may be mentioned tin, wool, rubber, ferro-manganese, leather, flax, and jute.

Makes Reciprocity Possible.

Prior to the enactment of this statute there was no governmental agency especially designated to deal with the proper officials of other governments in order to procure the release of commodities required by the United States and which had been embargoed by the other governments. The governmental supervision of imports makes possible a more effective scheme of reciprocity, and brings about a closer unity of the countries associated together in the war. Heretofore, in the absence of a responsible agency with which to deal, the allied governments were not in a position to know that all products exported by them to the United States would be utilized in a manner most conducive to the success of the great common enterprise. With the extension of scope in the operations of the War Trade Board there is at hand a dependable medium through which the Allies will be enabled more effectively to express their willingness to reciprocate, by making liberal shipments of commodities much needed by this country in exchange for the vast quantities of vital supplies which are going forward to them in an unending stream.

Various Trades Organized.

The various trades dealing in the embargoed commodities have been or are so organized that the total requirements of each industry can be accurately surveyed, the non-essential uses of any material eliminated, and a system of control provided which will ensure the equitable distribution of the imported commodity and its consumption in the most essential products. At present all of these materials are permitted by foreign governments to come into this country only under guarantees that they will not be re-exported except under specified restrictions; that they will not be used in trading directly or indirectly with the enemy; and that no purchase of any such material has been made as a speculation. At present these guarantees are given to the consul or other representative of the allied governments in this country, but this method of handling imports has resulted in some dissatisfaction on the part of American business men affected thereby.

Under the authority conferred upon the President by the "Trading-with-the-Enemy Act," the issuance of a proclamation requiring a license for the importation of these various articles puts into effect a plan whereby the giving of guarantees by individual parties to a foreign government is obviated, and American individuals or firms will henceforth deal directly with their own government in connection with their importation.

Larger Shipments Expected.

By virtue of this co-operation, supervision, and control on the part of the United States Government, it is believed there will be forthcoming larger quantities of these various commodities so essential for our successful participation in the war, as the allied powers are anxious to work in harmony with us to secure the most advantageous distribution of the world's supply of indispensable materials, desiring only the assurance of this Government that the distribution thereof will be equitable, thereby insuring the maximum of united effectiveness against the common enemy.

The War Trade Board, conscious of the responsibility they assume in assisting to accelerate and facilitate the nation's business, are approaching this tremendous task in a spirit of the broadest co-operation and accommodation, the desire being to obviate obstruction and vexatious delays to the fullest possible extent There is little doubt that all lines of business affected will cheerfully recognize the advantages of this centralized supervision, understanding that without it the economic situation and the effective conduct of the war would be seriously prejudiced; and will co-operate with the War Trade Board to attain the most equitable, and from a national point of view, the most advantageous distribution and utilization of all imported commodities.

Import License Procedure.

The following statement with regard to procedure was issued by the Bureau of Imports of the War Trade Board:

Import licenses are to be procured only upon application to the Bureau of Imports of the War Trade Board. Blank forms upon which such applications may be made will be supplied upon request by this Bureau. Applications are to be made out in duplicate and returned to the Bureau of Imports, War Trade Board, Bond Building, Washington, D.C.

The list of articles prohibited to be imported into the United States except under license follows:—

Antimony, antimony ore, or any chemical extracted therefrom; asbestos; beans of all kinds; balata; burlap; castor seed; castor oil; cotton; chrome, chrome ore, or any ferro-alloy or any chemical extracted therefrom; cocoanut oil; cobalt, cobalt ore, or any ferro-alloy or chemical extracted therefrom; copra; industrial diamonds; all ferro-alloys; flax; gutta percha; gutta siak; hemp hides and skins; jute; iridium; leather; manganese, manganese ore, or any ferro-alloy or chemical extracted therefrom; mica, molybdenum ore, or any ferro-alloy or chemical extracted therefrom; naxos emery, and naxos emery ore; nickel, nickel ore, matte, or any ferro-alloy or chemical extracted therefrom; sodium, potassium, or calcium nitrates; optical glass; palm oil; platinum; plumbago; pyrites; rice; rubber, raw, reclaimed, waste or scrap; scheelite; shellac; sisal; soya bean oil; spiegeleisen; sugars; tannin materials; tin in bars, blocks, pigs, or grain or granulated; tin ore and tin concentrates, or any chemical extracted therefrom; titanium, titanium ore, or any ferro-alloy or chemical extracted therefrom; tobacco; tungsten, tungsten ore, or any ferro-alloy or chemical extracted therefrom; vanadium, vanadium ore, or any ferro-alloy or chemical extracted therefrom; wheat and wheat flour; wolframite; wool.

A blanket license was issued for Canadian exports to the United States. This blanket licensing arrangement went into operation on December 6th, and was valid for one week from that date. After Dec. 12th, 1917, however, so far as regulations affecting this matter have been drafted up to the

present, the United States importer must apply to the Bureau of Imports, War Trade Board, Bond Building, Fourteenth Street and New York Avenue, Washington, D.C., for import licenses, when placing their orders with Canadian manufacturers. The British Embassy, Washington, has advised the Department of Trade and Commerce, Ottawa, that Canadian shippers should instruct their consignees in the United States to obtain import licenses for such articles as are on the restricted list, when placing their orders with Canadian firms. Regular forms for the purpose can be obtained by the consignee in the United States. The form is known as Form WTB 8. If the United States consignee would fill out this form in triplicate, and send one copy to the Canadian manufacturer or exporter, such Canadian manufacturer can facilitate the license as applied for by the United States consignee. To do this the Canadian manufacturer should send such triplicate form, with statement of his position, to F. C. T. O'Hara, Esq., Deputy Minister of Trade and Commerce, Ottawa, with the request that the application be facilitated through the British Embassy, Washington.

Harnessing the Tides*

Progress of the Project to Place Tide-Motors at Cape Split on the Bay of Fundy

By DR. G. B. CUTTEN
President, Acadia University

I have been asked to say something on the question of water-power—harnessing the Bay of Fundy. It was in a gathering something like this at Amherst that I first mentioned the possibility of our harnessing the Bay of Fundy. I made the statement then that it would pay the governments of the Maritime Provinces to offer a million dollars for a tide motor which would harness the Bay of Fundy. I had no idea at the time that I would be connected with this, or I would have made it two millions. I told Professor Clarkson that if I were an engineer I would either have the Bay of Fundy harnessed or be in Dartmouth. He started to work at it. The tide at Cape Split has a maximum velocity of sixteen miles an hour; this is greater than that of any river. You can see something of the enormous power when I tell you that in a shallow channel three miles wide enough water must pass four times a day to cover four hundred square miles from thirty to fifty feet deep. This is now going to waste.

The land was surveyed, readings were taken, and a motor was invented by Professor Clarkson. Our engineers, Messrs. Bogart and Pohl, the former the engineer who installed the first Niagara power plant, have recently sent us a report which is very satisfactory, showing that power can be produced from this current which would provide the Maritime Provinces at a very, very cheap rate; far cheaper than anything we have at the present time. Cape Split is in such a central position. Take a circle of 175 miles diameter with Cape Split as a centre. It would include Antigonish, Yarmouth, Fredericton, Newcastle, and Prince Edward Island. See how central the spot is. We are hoping for results, and, if I might say so, the matter should be taken up on account of its financial advantages. If the Germans had the Bay of Fundy it would have been harnessed long ago.

*Extract from address delivered at the Sydney Convention of the Maritime Branch, Canadian Manufacturers Association.

Clay Products' Convention

Canadian National Association Issues Programme for Its Annual Meeting in January

The Canadian National Clay Products Association will hold its Sixteenth Annual Convention at the Prince George Hotel, Toronto, on January 29, 30 and 31. Among the papers and addresses which will be given are: "The Workings of the Workmen's Compensation Act and How Assessments are Determined for the Different Classes," by Samuel Price, chairman of the Workmen's Compensation Board of Ontario, Toronto; "The Relation of the Economic Geologist to the Clay Industry," by N. B. Davis, B.Sc., M.A., Kingston; "Kiln Konstruction Kinks," by W. G. Worcester, secretary of the Alberta Clay Products Mfgs. Association; "Burning by the Use of Forced Draft and Low-grade Fuel," by W. G. Worcester; "Features of Construction of a Big Brick Factory," by A. F. Greaves-Walker, ceramic engineer of the American Refractories Co., Baltimore, Md.; "Manufacture of Floor and Wall Tile," by Jas. McCabe, ceramic engineer of the Frontenac Floor and Tile Co., Kingston; "Producer Gas-fired Dryers," by R. H. McElroy, International Clay Machinery Co., Dayton, Ohio, based on experiments by Profs. Parmalee and Hursh, at the University of Illinois; "Tile," by Prof. W. H. Day, B.A., Ontario Agricultural College, Guelph; "Motor Trucks in the Brick Business," by Angus German, Manager Sun Brick Co., Toronto.

It is expected also that Joseph Keele, chief engineer Ceramic Branch, Department of Mines, Ottawa, and C. W. Price, field secretary of the National Safety Council, Chicago, will be present and take part in the convention.

THREE FIRMS AMALGAMATED.

International Business Machines Co. Launched to Take Over Two Toronto and One Montreal Firm.

As a result of an important industrial amalgamation recently effected, the International Business Machines Company, Ltd., has been launched, with a capital of $2,000,000. The new concern will take over the plants and stocks of the International Time Recording Co. and the Computing Scale Company, of Toronto, and the Canadian Tabulating Machine Co., of Montreal. The operations of this latter concern will be transferred to Toronto. A great saving in the cost of management and operation is aimed at by the bringing together of these three companies. Thomas J. Watson will be the president of the new combination, and F. E. Mutton the vice-president and general manager. J. S. Ogsbury is the secretary. L. A. Davidson has been appointed sales manager for the scales division, and S. G. Bond, of Montreal, will have charge of the tabulating section. The company has $100,000 available for immediate expansion, and will employ 500 men at the outset.

FIRE LOSSES IN OCTOBER.

For United States and Canada Combined, Ten-Month Losses are far in Excess of Last Year.

According to estimates compiled by the *Monetary Times*, the total fire losses throughout Canada during the month of October amounted to $704,605, as compared with a loss of $1,301,700 during September and $1,077,815 during October of last year. This brings the total fire losses during the first ten months of this year to $13,982,936.

Fair Values of Iron and Steel Products

Further Figures Have Been Issued by the United States Authorities and These Have Been Placed in the Hands of Collectors of Customs Throughout Canada

SINCE our last issue the United States authorities have established further fair values in respect to various iron and steel products. These fair values have been placed by the Department of Customs before its collectors throughout the Dominion of Canada for guidance in checking import entries. These new Customs instructions are quoted below:—

PIG IRON.

The following schedule of price differentials covering all grades of pig iron at all producing and sale centres in the United States effective Nov. 3rd, 1917, is announced.

These differentials are to be added to or subtracted from the base of $33 per gross ton on No. 2 Foundry and Basic (Valley Furnaces).

The grade of No. 2 Foundry Iron to be equivalent in analysis to:—

Silicon . . . . . 1.75 to 2.25
Sulphur . . . . . Not over .05

No. 2 Soft Southern Iron equivalent to No. 2 Foundry of same Silicon content.

Differentials from the above price for No. 2 Foundry Iron to be made for the following changes in specifications:—

Forge or Mill Iron ..... $1 00 per gross ton under base.
Foundry Iron running Silicon 1.00 to 1.75 ..... 0 50 " under base.
Foundry Iron running Silicon 2.25 to 2.75 ..... 0 50 " over base.
Foundry Iron running Silicon 2.75 to 3.25 ..... 1 50 " over base.

Foundry Iron in excess of 3.25 silicon, add $1.00 per gross ton for each ½% of silicon over the price for 3.25 silicon iron.

Manganese, sulphur and phosphorus variations to be adjusted as formerly customary in each district having respect to the base price.

Where iron is sold by fracture the usual grading prevailing in each district to continue.

Malleable Iron ..... $0.50 per gross ton above base.
Bessemer Iron ..... 10% per gross ton above base.
Basic Iron ..... Base price.

Charcoal Iron.

Southern or warm blast charcoal iron a maximum of $10 per gross ton above base for iron ranging .40 to .60 phosphorus, and silicon 1.00 to 2.00.

For grades running below these analyses corresponding reductions as usual to the trade to be made.

Cold blast charcoal iron a maximum of $22 per gross ton above base with customary reductions for lower grades, as recognized by the trade.

Lake Superior iron $2.50 per gross ton above base for iron averaging 1.25 silicon. Other grades to be adjusted as per the custom of the trade depending upon the silicon, phosphorus and manganese contents of the iron.

All of these charcoal iron differentials to be considered in connection with the base price.

High Silicon or Silvery Iron.

For iron containing:—

6% Silicon ..... $7 00 per gross ton above base.
7% Silicon ..... 9 00 per gross ton above base.
8% Silicon ..... 11 50 per gross ton above base.
9% Silicon ..... 14 00 per gross ton above base.
10% Silicon ..... 17 00 per gross ton above base.

$3 per gross ton advance for each 1% silicon for 11% and over.

Bessemer Ferro Silicon.

For iron containing:—

10% Silicon ..... $22 00 per gross ton above base.
11% Silicon ..... 25 30 per gross ton above base.
12% Silicon ..... 28 60 per gross ton above base.

Low Phosphorus Iron.

Iron containing phosphorus and sulphur not exceeding .04 and silicon not exceeding 2%.

For Copper-bearing Iron .... $17 00 per gross ton above base.
For Copper-free Iron ..... 20 00 per gross ton above base.

A sliding scale of $1.50 per gross advance for each reduction in phosphorus of .005% below .04 and $1.75 per gross ton advance for each 1% of silicon in excess of 2%.

Coke (Modified Prices).

By-product . . . . . $6 00 per net ton.
Selected Foundry ..... 7 00 per net ton.
By-product over One-inch Size ..... 6 50 per net ton.

IRON AND STEEL PRODUCTS.

Additional steel prices have been agreed upon by the War Industries Board and the principal steel industries of the United States with the approval of the President.

Accordingly, under the provisions of Section 43-5 of the Customs Act, iron and steel products enumerated below, when purchased by the importer before November 14th, 1917, and exported to Canada on or after that date, may, upon presentation to the Collector of Customs of the required documentary proof of purchase as above, be appraised as follows:—

Lapwell Steel Boiler Tubes.

3½" to 4½" tubes ..... 34% off list.
2½" to 3¼" tubes ..... 24% off list.
2¼" tubes ..... 17½% off list.
1¾" to 2" tubes ..... 13% off list.

Above prices for carload lots f.o.b. Pittsburgh.

Charcoal Iron Boiler Tubes.

3½" to 4½" tubes ..... 12½% off list.
3" to 3¼" tubes ..... List, plus 5%.
2½" to 2¾" tubes ..... List, plus 7½%.
2" to 2¼" tubes ..... List, plus 22½%.
1¾" to 1⅞" tubes ..... List, plus 35%.

Above prices for carload lots f.o.b. Pittsburgh.

Standard Commercial Seamless Boiler Tubes.

Cold Drawn or Hot Rolled.

1″	$340 00 per net ton.
1¼″	280 00 per net ton.
1⅜″	270 00 per net ton.
1½″	220 00 per net ton.
1¾″	220 00 per net ton.
2″ to 2½″	190 00 per net ton.
2¾″ to 3¾″	180 00 per net ton.
4″	200 00 per net ton.
4½″ to 5″	220 00 per net ton.

Above prices for carload lots f.o.b. Pittsburgh.

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

Special Skelp for Boiler Tubes, etc.

Base sizes, f.o.b. Pittsburgh, per 100 lbs.	$3 40
Other sizes, f.o.b. Pittsburgh, per 100 lbs.	3 55

Round Billets for Seamless Steel Tubes.

Base sizes, f.o.b. Pittsburgh, per 100 lbs. $3 25

Bolts, Nuts and Rivets.

Large Rivets	$4.65 base.
7-16″ x 6″ smaller and shorter Rivets	45–10% off list.
Machine Bolts, H.P. Nuts, ⅜″ x 4″	
Smaller and shorter, Rolled Threads	50–10–5% "
Cut Threads	50–5% "
Larger and longer sizes	40–10% "
Machine Bolts, C.P.C.&T. Nuts, ⅜″ x 4″	
Smaller and shorter	40–10% "
Larger and longer	35– 5% "
Carriage Bolts, ⅜″ x 6″	
Smaller and shorter, Rolled Threads	50– 5% "
Cut Threads	40–10–5% "
Larger and longer sizes	40% "
Lag Bolts	50–10% "
Plow Bolts, Nos. 1, 2, 3	50% "
Hot Pressed Nuts, Square, Blank	2.50c. per lb. off list.
" Hexagon, Blank	2.30c. "
" Square, Tapped	2.30c. "
" Hexagon, Tapped	2.10c. "
C.P.C. & T. Square and Hexagon Nuts, Blank	2.25c. "
C.P.C. & T. Square and Hexagon Nuts, Tapped	2.00c. "
Semi-finished Hexagon Nuts—	
⅝″ and larger	60–10–10% off list.
9-16″ and smaller	70– 5% "
Stove Bolts	70–10% "
Stove Bolts	2½% extra for bulk.
Tire Bolts	50–10–5% off list.

The above discounts are from present lists now in effect.

All prices carry standard extras.

Warehouse Trade.

Prices from stock on heavy iron and steel products.

The following differentials to apply on the official maximum mill prices f.o.b. Pittsburgh, plus carload rate of freight from Pittsburgh to warehouse point:—

Bars, structurals, plates, blue annealed, No. 16 and heavier, billets, $1.00 per 100 lbs.

One pass cold rolled sheets, No. 18 and lighter, galvanized sheets, $1.25 per 100 lbs.

Cold rolled shafting, 25 points, which is $1.25 per 100 lbs. on base sizes.

Iron Bars.

Base sizes, per 100 lbs $3 50

Usual and customary extras for size, quantity, etc., and established custom as regards delivery point to govern.

Wire Products.

Wire Nails, base, per 100 lbs., f.o.b. Pittsburgh	$3 50
Painted Barbwire, base, per 100 lbs., f.o.b. Pittsburgh	3 65

Usual trade differentials as to sizes and quantity to govern.

Boat Spikes.

Base sizes, per 100 lbs., f.o.b. Pittsburgh $5 00

Usual trade differentials as to sizes and quantity to govern.

Automobile Sheet Prices—Based on No. 22 Gauge, Other Gauges at Usual Differentials.

	Primes only per 100 lbs.	Primes when seconds up to 15% are taken per 100 lbs.
Automobile body stock	$5 95	$5 85
Automobile body stock, deep stamping	6 20	6 10
Automobile body stock, extra deep stamping	6 45	6 35
Hood, flat fender, door and apron, or splash guard stock	6 05	5 95
Crown fender, cowl and radiator casing, deep stamping	6 30	6 20
Crown fender, cowl and radiator casing, ex. deep stamping	6 55	6 45

Automobile sheet extras for extreme widths:—

Nos. 17 and 18 over 36″ to 44″	10c. per 100 lbs.
Nos. 19 to 21 over 36″ to 44″	30c. per 100 lbs.
Nos. 22 to 24 over 36″ to 40″	40c. per 100 lbs.
Nos. 22 to 24 over 40″ to 44″	80c. per 100 lbs.

Black sheet extras to apply on narrow widths:—

Oiling	10c. per 100 lbs.
Patent levelling	25c. per 100 lbs.

Resquaring—5% of gauge price after quality, finish and size extras have been added.

Seconds Arising—10% less than the invoice Pittsburgh price for corresponding primes.

Electrical Sheets.

Guaranteed as to electrical efficiency. Manufactured under various trade names and guaranteed to meet the established standard of the grades under the trade names given below:—

Armature Grade, base sizes, No. 28 gauge	$6 00
U.S. Electric, base sizes, No. 28 gauge	6 50
Dynamo, base sizes, No. 28 gauge	8 00
Apollo Special, base sizes, No. 28 gauge	8 50

Black sheet extras to apply to special sizes.

Forging Steel.

Base price per gross ton, f.o.b. Pittsburgh $60 00

Subject to the following extras:—

Large size Forging Bloom Extras:—	12,000 lbs. and under each Base.	Over 12,000 lbs. each
Up to but not including 10″ x 10″	....	$7 00
10″ x 10″ up to but not including 16″ x 16″	$2 00	9 00
16″ x 16″ up to but not including 20″ x 20″	4 00	11 00
20″ x 20″ up to and including 24″ x 24″	6 00	13 00

For slabs, use the above extras for equivalent sectional area; and for slabs of greater equivalent area than 24″ x 24″, use the above extras for 24″ x 24″ blooms.

Usual carbon differentials and other extras as provided in the billet schedule to be added in addition to the above extras for forging quality, as follows:—

	Extra for Carbon Base.
Up to and including .25 carbon	
.26 to .60 carbon	$1 00 per ton extra.
Over .60 carbon	2 00 per ton extra.

All the above extras will apply to all material sold for forging purposes. They also apply to either Basic, Open-hearth or Bessemer Steel.

For forging into car axles only, blooms, under 10″ x 10″, will carry an extra of $5 per ton over base price of re-rolling billets (i.e., $47.50 per gross ton), to which will be added usual extras for carbon, as above.

Prices on Coal

Modification of Prices in Accordance with Announcement by United States Fuel Administration

The prices set forth in Appraisers' Bulletin No. 1600 are modified as below, in accordance with announcement by the United States Fuel Administration, effective for shipments contracted for as provided for therein and exported to Canada on or after November 7th, 1917.

Coal mined in the following counties in

Kentucky.

McCreary, Martin, Leslie, Pulaski, Whitley, Harlin, Rockcastle, Laurel, Magoffin, Jackson, Owsley, Boyd, Lee, Clay, Carter, Wolfe, Knox, Pike, Morgan Bell, Lawrence, Breathitt, Johnson, Perry, All of Floyd, Knott & Letcher, excepting coal produced from the thick vein Elkhorn district.

Tennessee.

Scott, Claiborne, Morgan, Campbell, Anderson.

Virginia.

Coal from the mines near St. Charles, Lee Co., Va., by The Darby Coal Mining Co., Black Mountain Mining Co., Virginia Lee Co., Old Virginia Coal Co., United Collieries Co., Inc., Benedict Coal Corporation.

Run of mine	$2 40 per ton.
Prepared sizes	2 65 per ton.
Slack or screenings	2 15 per ton.

For coal mined in the Blue Gem seam, Campbell County, Tenn., and in the counties of Whitley, Knox, Clay and Bell, Ky., the following prices have been set:—

Run of mine	$4 00 per ton.
Prepared sizes	4 25 per ton.
Slack or screenings	2 75 per ton.

For coal mined in the Deerfield or Palmyra field, in the Massillon field, and in the Jackson field of Ohio:—

Run of mine	$3 75 per ton.
Prepared sizes	4 00 per ton.
Slack or screenings	3 50 per ton.

Recent Customs Rulings

Customs Questions Which Have Come Up for Decision During the Past Month

Hat braids, per samples, ruled free of duty under tariff item 641.

Dental cement powder or compound, in bulk, ruled to be dutiable under tariff item 711 at 17½%, plus the war tariff of 7½%.

Liquid (acid), per sample, for use with dental cement, ruled to be dutiable under item 216 at 22½%, plus the war tariff.

Albasol leather oil ruled to be dutiable under item 711 at 17½%, plus the war tariff.

Ruling that imported materials shipped to Canada on consignment to be manufactured into articles for shipbuilding and returned to the United States, may be entered at Customs as for warehouse, and be further manufactured conditional on exportation of the product to the United States upon payment of 1% of the Customs duties, based on the values of the materials imported. The scrap would either have to be exported, if of any value, or scrap duty paid thereon. The Customs supervision would be at the expense of the Customs Department of Canada.

Ruling of the United States Treasury Department that the Army Appropriation Act of May 12th, 1917, specified that articles purchased thereunder by the War Department may be admitted to entry free of duty. Only such articles are admitted to free entry as are paid for from such appropriation, and so certified by the Secretary of War to this Department with a request for their free entry.

Ruling that in respect to the United States so-called War Excise Tax on automobiles, musical instruments, etc.:—

This tax is an export tax if charged to the importer in Canada, and forms part of the true invoice value which is dutiable under Sub-section 43 of the Customs Act.

This means that the 7½% Customs war tax of Canada will be demanded to be paid by the Canadian Customs on such importations.

President Wilson's Proclamation

Copy of the Document Under Which Importation of Certain Commodities into United States except Under a License is Prohibited

By the President of the United States of America.

A Proclamation.

Whereas Congress has enacted and the President has on the 6th day of October, 1917, approved a law which contains the following provisions:

Whenever during the present war the President shall find that the public safety so requires and shall make proclamation thereof, it shall be unlawful to import into the United States from any country named in such proclamation any article or articles mentioned in such proclamation except at such time or times, and under such regulations or orders, and subject to such limitations and exceptions as the President shall prescribe, until otherwise ordered by the President or by Congress; provided, however, that no preference shall be given to the ports of one State over those of another.

Now therefore, I, Woodrow Wilson, President of the United States of America, do hereby proclaim to all whom it may concern that the public safety requires that the following articles, namely: antimony, antimony ore, or any chemical extracted therefrom; asbestos; beans of all kinds; balata; burlap; castor seed, castor oil; cotton; chrome, chrome ore, or any ferro-alloy or chemical extracted therefrom; cocoanut oil; cobalt, cobalt ore, or any ferro-alloy or chemical extracted therefrom; copra; industrial diamonds; all ferro-alloys; flax; gutta joolatong; gutta-perchal gutta siak; hemp; hides and skins; jute; iridium; leather; manganese, manganese ore, or any ferro-alloy or chemical extracted therefrom; mica molybdenum, molybdenum ore, or any ferro-alloy or chemical extracted therefrom; naxos emery and naxos emery ore; nickel, nickel ore, matte, or any ferro-alloy or chemical extracted therefrom; sodium, potassium, or calcium nitrates; optical glass; palm oil; platinum; plumbago; pyrites; rice; rubber, raw, reclaimed, waste or scrap; scheelite; shellac; sisal; soya bean oil; spiegeleisen; sugars; tanning materials; tin in bars, blocks, pigs, or grain or granulated; tin ore and tin concentrates, or any chemical extracted therefrom; titanium, titanium ore, or any ferro-alloy or chemical extracted therefrom; tobacco; tungsten, tungsten ore, or any ferro-alloy or chemical extracted therefrom; vanadium, vanadium ore, or any ferro-alloy or chemical extracted therefrom; wheat and wheat flour; wolframite; or wool, shall not, from and after the date of this proclamation, be imported into the United States or its territorial possessions from Abyssinia, Afghanistan, Albania, Argentina, Austria-Hungary, Belgium, her colonies, possessions and protectorates, Bolivia, Brazil, Bulgaria, China, Chile, Colombia, Costa Rica, Cuba, Denmark, her

colonies, possessions and protectorates. Dominical Republic, Ecuador, Egypt, France, her colonies, possessions and protectorates, Germany, her colonies, possessions and protectorates, Great Britain, her colonies, possessions and protectorates, Greece, Guatemala, Haiti, Honduras, Italy, her colonies, possessions and protectorates, Japan, Liechtenstein, Liberia, Luxembourg, Mexico, Monaco, Montenegro, Morocco, Nepal, the Netherlands, her colonies, possessions and protectorates, Nicaragua, Norway, Oman, Panama, Paraguay, Persia, Peru, Portugal, her colonies, possessions and protectorates, Roumania, Russia, Salvador, San Marino, Serbia, Siam, Spain, her colonies, possessions and protectorates, Sweden, Switzerland, Turkey, Uruguay, or Venezuela, except under license granted by the War Trade Board, in accordance with regulations or orders and subject to such limitations and exceptions as have heretofore been made, or shall hereafter be prescribed in pursuance of the powers conferred by said Act of October 6th, 1917, and the Executive order of October 12th, 1917.

In witness whereof I have hereunto set my hand and caused the seal of the United States of America to be affixed.

Done in the District of Columbia this 28th day of November, in the year of our Lord, 1917, and of the Independence of the United States of America the one hundred and forty-second.

(SEAL.) (Signed) WOODROW WILSON.

By the President, Robert Lansing, Secretary of State.

The duty of administering the foregoing prohibitory order against imports into the United States has been placed upon the War Trade Board, Washington.

NEW SHOE INDUSTRY.

George L. Williams & Sons, Limited, is a new company, composed of men of that name who have long been connected with the shoe manufacturing trade in Ontario. The firm advise us that they have secured a suitable building in Otterville, Ontario, and after their new machinery is installed will set to work with a number of skilled employees who have been specially selected to maintain the standard of previous productions of firms with whom the Messrs. Williams have been associated in the past.

FOREIGN TRADE OF CANADA

(Comparison 1915, 1916, 1917.)

IMPORTATIONS.

	Month of October.			Seven Months Ending October.		
	1915	1916	1917	1915	1916	1917
Dutiable Goods	$22,801,957	$37,946,011	$47,019,685	$147,157,521	$254,530,818	$346,108,703
Free Goods	16,713,187	33,250,241	31,156,791	105,950,142	207,630,677	281,992,997
Total	$39,515,144	$71,196,252	$78,176,476	$253,107,663	$462,161,495	$628,101,700
Coin and Bullion	1,924,605	781,115	489,370	5,766,782	20,971,433	8,648,263
Grand Total	$41,439,749	$71,977,367	$78,665,846	$258,874,445	$483,132,928	$636,749,963
Duty Collected	$8,201,830	$12,074,463	$13,824,545	$52,622,863	$82,177,318	$102,106,365

EXPORTATIONS.

(Month of October.)

	1915		1916		1917	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$6,669,776	$231,707	$7,299,082	$17,383	$7,668,525	$94,975
The Fisheries	2,527,616	17,421	2,515,518	17,787	3,744,367	36,167
The Forest	5,503,343	52,066	5,450,202	338	4,900,739	1,400
Animals and their Produce	12,081,545	136,064	13,718,592	530,845	18,679,265	1,358,919
Agricultural Products	39,833,353	2,561,038	27,306,934	654,333	45,504,815	215,059
Manufactures	12,880,731	890,770	28,637,814	651,726	74,419,973	2,898,213
Miscellaneous	542,218	174,417	384,033	131,147	176,060	186,020
Total Merchandise	$80,038,582	$4,063,483	$85,312,175	$2,003,559	$155,093,744	$4,790,753
Coin and Bullion	.....	24,462,311	14,635	5,022,443	9,733	274,245
Grand Total Exports	$80,038,582	$28,525,794	$85,326,810	$7,026,002	$155,103,477	$5,064,998

EXPORTATIONS.

(Seven Months Ending October, 1917.)

	1915		1916		1917	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$36,766,306	$7,034,710	$48,242,497	$141,181	$43,593,285	$291,839
The Fisheries	11,960,689	44,605	12,845,386	30,104	14,178,138	118,913
The Forest	34,075,344	353,280	36,703,753	202,612	33,236,635	38,883
Animals and their Produce	57,015,375	1,775,246	67,101,478	2,253,289	101,681,970	3,554,020
Agricultural Products	99,180,336	17,010,321	233,448,260	3,871,858	306,159,775	6,827,115
Manufactures	84,357,550	3,956,293	219,461,054	4,875,953	420,380,372	13,227,504
Miscellaneous	3,075,130	873,962	4,231,261	909,711	2,727,291	1,368,443
Total Merchandise	$326,430,730	$31,048,417	$622,033,689	$12,284,708	$921,957,466	$25,426,717
Coin and Bullion	75	93,183,821	15,792	195,722,474	237,668	2,244,444
Grand Total Exports	$326,430,805	$124,232,238	$622,049,481	$208,007,182	$922,195,134	$27,671,161

Advocate Textile Schools

An Important Meeting of the Executive Council of the Canadian Textile Institute, held at Montreal, December 1st, 1917

A number of educationalists and a few of the leading technical men in the textile industry, as well as the chairman and secretary of each of the branches, were invited to attend a council meeting of the Executive of the Canadian Textile Institute, which was held at Montreal, on December 1st, for the purpose of determining the educational policy best adapted to the needs of the textile industry of Canada and ascertain the most practical and effective methods of putting same into immediate operation.

The meeting was held at the rooms of the University Club in two sessions, one in the forenoon and one in the afternoon. The first session, which opened at ten o'clock and adjourned at one, was devoted entirely to discussion, which crystallized into definite resolutions in the afternoon session, which lasted from three until six p.m., so that practically the whole day was given up to this important matter.

Mr. C. M. Heddle, of Paris, Ontario, First Vice-President of the Textile Institute, presided. In opening the meeting Mr. Heddle and Mr. Harpell, who has devoted much time to the organization and work of the Institute, spoke of the absence in Canada of any facilities for the training of men and women for the textile industry, such as exist in United States, Great Britain and other countries.

It is thirty-five years since the Philadelphia Textile School first opened its doors to students and over twenty-five years since the first school was established by the State of Massachusetts, at Lowell. Since then two other schools have been established by that State, one at New Bedford and another at Fall River, while most of the other States with any considerable textile industry have followed the lead of Massachusetts and Pennsylvania. In England there are also many textile schools and there are similar institutions in the other European countries and in Japan. The Canadian Textile Institute has decided that this country cannot afford to delay longer the inauguration of similar work here.

At the end of the discussion the Council unanimously adopted the following resolutions, which were to be submitted to the next annual meeting of the Institute, which in all likelihood will be held at Toronto during the latter part of January.

1. That the establishment of higher textile schools is necessary to the proper development of the Canadian Textile Industry.

2. That steps should be taken to establish two such schools, one in Ontario, situated at Toronto, and one in Quebec, situated in Montreal.

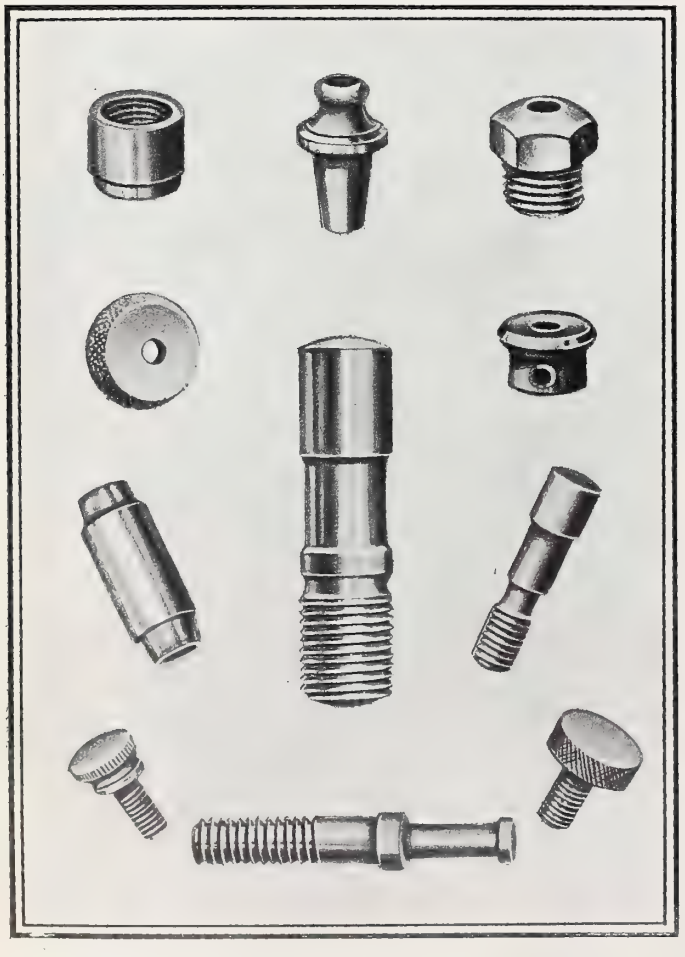
3. That each school should be maintained or subsidized by the Province in which it is located, and that steps be taken to secure that support.

Other resolutions passed by the Council were as follows:

1. To make application to the Honorary Advisory Council for Scientific and Industrial Research for the appointment of a sub-committee of their Council to represent the Canadian textile industry, as they have in the case of other technical organizations.

2. To take steps to incorporate the Institute.

The Council succeeded in persuading Mr. A. Burton to take up the work of the Institute and elected him to the position of Secretary and Educational Director. Mr. Burton will devote his whole time to the work.



CARON BROTHERS

Manufacturers of Automatic Screw Machine Products in brass and steel, also metal stampings and press work of all kinds.

Your enquiries are solicited and by return mail we will quote price and deliveries which in all cases will be prompt.

CARON BROTHERS
Caron Building, 233 Bleury Street
MONTREAL, QUE.

AUTOMOBILE THEFTS.

Indifference of Owners to Loss May Lead to Introduction of Three-quarters Loss Clause.

The enormous losses upon automobile policies in the United States, caused by theft, have started a movement to require something like the well-known three-quarters loss clause in new policies. The theory has been advanced by officials that the fact that they hold insurance against theft rather cools the anxiety of owners of cars to do much toward the recovery of their lost property or to hunt the thieves. Their indifference has made an impression upon the companies, and in a recent conference the proposal to make the owners sustain a portion of the loss met with considerable favor.

Manager Wanted

Man of experience in manufacturing production and office management in new, growing business. Must be energetic and resourceful. State age, experience and salary required.

Address Box 99, INDUSTRIAL CANADA



The Canadian Salt Without a Fault

If you wish to impress on a customer the fact that some one article in your store is pure, you can't make a stronger comparison than to say, "It is as pure as Windsor Salt."

Windsor Salt has probably been used in her home for years.

Windsor Table Salt
Made in Canada
THE CANADIAN SALT CO, LIMITED

Old Tyme Pure Maple Syrup
AND
Maple Butter

SOLD EVERYWHERE

Maples Limited
Manufacturers and Refiners
TORONTO CANADA

JOHNS-MANVILLE
Asbestos

Resistant to heat, water, wear and weather

JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

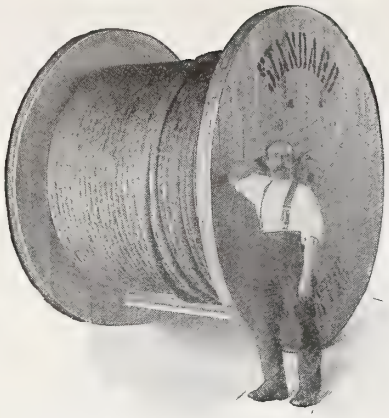
Insulations Packings Steam Traps
Roofings and Building Materials
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THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.
Toronto Montreal Vancouver Winnipeg

When you think of Asbestos you think of Johns-Manville

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MANUFACTURERS OF
"Premier" Pure Tin, Plain and Decorated Collapsible Tubes
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Solicitors of Patents
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PATENT SUITS
Agencies in the leading countries of the World.
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59 YONGE STREET, TORONTO



STANDARD
Service

means ability to supply promptly high quality electric wires, cables and accessories of all kinds at reasonable prices.

We also offer our customers the benefit of over 35 years' specialized experience in the manufacture and installation of these products.

We will appreciate an opportunity to serve you.

Standard Underground Cable Co. of Canada, Limited
Hamilton, Ont.

MONTREAL TORONTO SEATTLE

DOON TWINES
LIMITED
KITCHENER, ONT.

Manufacturing a Full Line of
Flax, Hemp and Jute Twines

We Specialize in
Mattress, Tufting, Broom, Sewing, Stitching, Warehouse and Bundling Twines; also Ropes, Plow Lines and Clothes Lines

Having the raw material on hand to spin the above we can guarantee delivery.

Write for Samples and Prices

MILLS: DOON and KITCHENER

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES.

976. **Agency in Eastern Canada.**—A tannery in the West, specializing in the manufacture of lace leather, is desirous of getting in touch with brokers or other representatives to handle its goods in the bigger cities of Eastern Canada.

977. **Collar Supports.**—A Toronto manufacturer of women's neckwear, etc., wishes to hear from Canadian manufacturers of featherbone or other collar supports with a view to getting supplies.

978. **Agency, Etc.**—We are in touch with a party who has had considerable mechanical and selling experience in engineering and machinery lines. He is now open to consider a proposal from Canadian manufacturers who desire to be represented as an agent in Toronto, or are looking for a travelling man. He also has qualifications which would enable him to fill the position of an economical production manager.

979. **Patent Tooth Brush.**—A party in Akron, Ohio, who has recently taken out a patent on a tooth brush, wishes to get in touch with manufacturers who may be interested in making such an article.

980. **Cellulose Acetate.**—A Canadian varnish maker is desirous of obtaining supplies of this material.

981. **Buckle Tongues.**—A Canadian manufacturer of hair ornaments desires to get supplies of metal buckle tongues of light weight. A sample can be furnished on request.

982. **Spruce Lumber.**—A well-known manufacturer of automobile bodies in Ontario would like to hear from firms producing a good quality of spruce lumber in the rough.

983. **Door Check.**—We are in touch with a party in Kansas who has a patent on a door check that he wishes to dispose of or get manufactured on a royalty basis.

984. **Agency for Building Material, Etc.**—A well-known manufacturer in Montreal, who has been closely associated with the building trade for years, would like to hear from manufacturers of any kind of building material or allied lines, who desire to have an agent represent them in Montreal.

EXPORT TRADE ENQUIRIES.

985. **South Africa.**—A party who has had considerable experience in the mining business in South Africa, and is familiar through five years' connection with Canadian contracting business, desires to get in touch with Canadian manufacturers who are interested in arranging for representation of their lines in South Africa, where he has interests and expects to return to very shortly.

986. **Egypt.**—A firm of commission agents and government contractors in Cairo, would like to hear from Canadian manufacturers of such lines as galvanized pipes, galvanized sheets, hardware, woolen and cotton piece goods, who are interested in developing the export trade.

Little Articles That Aid Electrical Efficiency

Time-Savers **Current-Savers** **Money-Savers**

When TWO Sockets are Needed Where There's Only ONE



Wherever a lamp has to be removed every time the Adding Machine, Portable Heater, or other Office or Household Electrical Appliance is used, there should be ***two*** sockets, instead of ***one***—in other words what is needed is a

Benjamin

"92" TWO-WAY PLUG

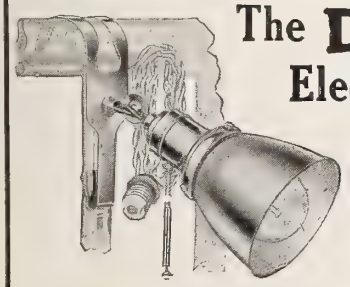
for it is the easiest, quickest and best way to obtain the additional service required. No extra wiring, trouble or great expense. Absolutely safe—perfectly simple. Nothing to do but screw it into the socket, just like a lamp, and you have ***two*** outlets for current, instead of one. Get one from your nearest Electrical or Hardware Dealer—but be sure it's a **BENJAMIN**—for imitations are like gift horses—too cheap to be good. If you can't get what you ask for, send $1.00 and we will mail it direct, postpaid.

The C-H Seventy Fifty SWITCH Puts the Current Under Your Thumb



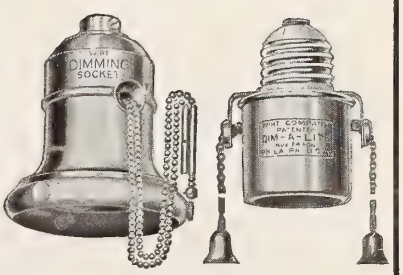
It makes electricity a still handier servant than before, for it may be installed on the cord of any appliance just at the location desired—no reaching up to an overhead fixture socket; or noisy, useless, time-wasting walking around to push the button.

The C-H 7050 SWITCH is a great economizer — you press it "on" only when you want the current; you press it "off" the instant you're finished — because it's "under your thumb." If your Electrical or Hardware dealer hasn't the C-H 7050 Switch, send us 65c, and a sample will be mailed to you direct.



The DIM-A-LITE Turns Electric Lights Up or Down

Everyone wants to be able to turn electric light up or down, like gas — and that's just what the Dim-A-Lite makes possible—you can turn the lamp full-on, half-on, dim, down to merely a speck, or entirely out. Think of the convenience and saving of current. It is made in three forms; as an attachment socket to screw into any lamp, as a permanent fixture, or as a portable. Ask your nearest Electrical or Hardware Dealer, or write us for particulars.



The Benjamin Electric Mfg. Co. of Canada, Limited

11-17 CHARLOTTE STREET, TORONTO

987. **France.**—A gentleman who is closely associated with the commercial life of Bordeaux is very much interested in receiving communications from Canadian manufacturers, particularly of food products and allied lines, with a view to negotiating for purchases of their goods. He claims to be in a position to pay cash against documents in any bank indicated by the seller.

988. **West Indies.**—A party in Nevis, British West Indies, is interested in any goods that may be sold to the dry-goods trade. He wishes to represent Canadian manufacturers on a commission basis.

989. **New Zealand.**—A firm of merchants, importers and manufacturers' agents in Auckland, offering the Bank of Australia as a reference, desire to be appointed agents, where possible, for Canadian manufacturers of carbide of calcium, fencing wire, wire netting and metal roofing.

990. **New Zealand.**—A firm of merchants, importers and manufacturers' agents in Auckland, offering the Bank of Australia as a reference, desire to be appointed agents, where possible, for Canadian manufacturers of plate and cutlery, travelling bags and suit cases, furs, roll-top desks, and caskets.

991. **New Zealand.**—A firm of merchants, importers and manufacturers' agents in Auckland, offering the Bank of Australia as a reference, desire to be appointed agents, where possible, for Canadian manufacturers of cereals, canned fish and fruit, chocolates, cottolene and malt extracts.

992. **New York Export.**—A well-known house of exporters in New York would like to hear from Canadian manufacturers of veneer plywood panels.

PRESSES

Made in Canada

HYDRAULIC PRESSES, PUMPS AND ACCUMULATORS

Forging, Nosing and Marking Presses for all Size Shells
Presses for General Purposes

WILLIAM A. PERRIN, Limited TORONTO CANADA



HIGH-CLASS
MADE-IN-CANADA

AIR COMPRESSORS

Send us your inquiries

HAMILTON MOTOR WORKS, LIMITED
HAMILTON CANADA

993. **New York Export.**—A syndicate, controlling the export trade of a number of United States machinery manufacturers, would like to get in touch with Canadian manufacturers of machinery and materials connected with machinery who are interested in getting a lasting foothold in the Spanish market.

994. **Dutch East Indies.**—We have a communication from the Government Purchasing Department who are in the market to purchase machine tools, iron and steel bars, steel sheets, car wheels and axles, pumping apparatus, cable, brass and copper products, and any other metal products necessary for the operation of railways and mines. This office is located in New York, and we should be glad to furnish the address to interested manufacturers.

995. **Australia.**—A firm of merchants and commission agents in Brisbane, desires to be entrusted with lines of Canadian manufacturers who produce groceries and oilmen's stores, cabinet makers' ware, hardware, glass and brush ware.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE.

1442.- 996. **Mantles, Etc.**—Canadian manufacturers of mantles, overmantles, picture frames, and picture-frame mouldings, are inquired for by a St. John's dealer.

1445.- 977. **Furniture.**—A manufacturers' agent in St. John's, Newfoundland, is open to represent Canadian manufacturers of church, school and office furniture.

1446.- 998. **Pumps.**—A commission agent in Omsk, Siberia, is desirous of receiving quotations from Canadian manufacturers of pumps.

1448.- 999. **Flour-mill Machinery.**—A party doing business in Omsk, Siberia, would be glad to receive quotations from Canadian manufacturers in a position to supply roller flour-milling machinery of a size 14 feet diameter and 32 feet in length.

1454.-1000. **Toilet Soaps, Perfumes, Essences, Etc.**—A Johannesburg firm of manufacturers are prepared to handle a smart line of the above goods for Johannesburg and district. Immediate correspondence requested for present business or preparation for after-the-war.

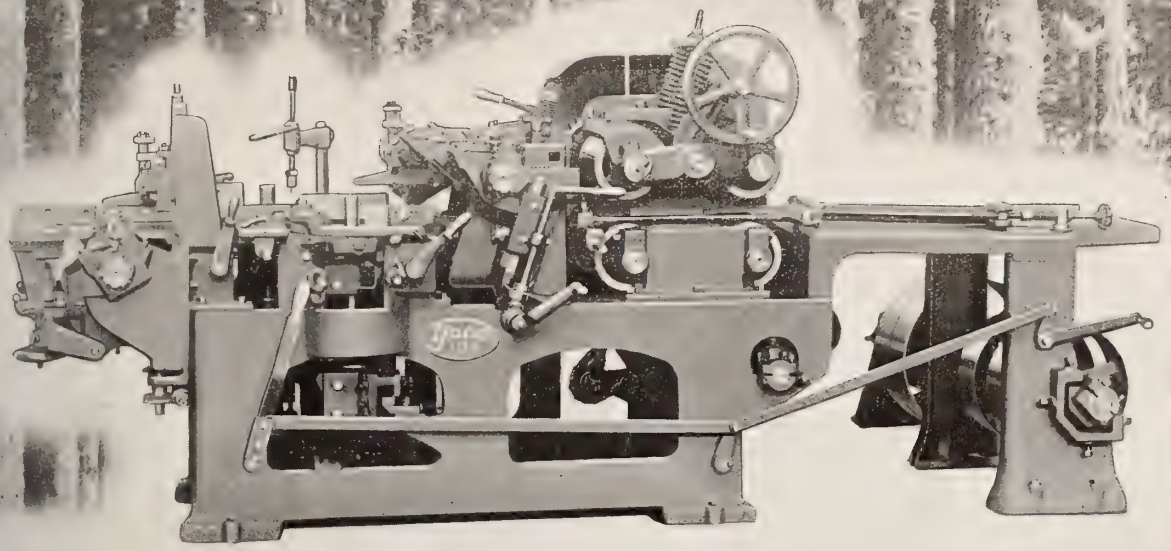
1463.-1001. **Tools and Handles.**—A Durban firm of wholesale merchants request samples when possible, catalogues and price lists, with particulars of packing, from Canadian manufacturers of shovels, spades, pickaxes, axes, farm tools, also pickaxe tools and broom handles.

1474.-1002. **Washboards.**—A Glasgow firm who import washboards, would be glad to hear from Canadian manufacturers seeking business after the war.

1476.-1003. **Confectionery.**—An important drug store in Barbados would like to import Canadian confectionery.

In announcing the amalgamation of Rolph & Clark, Limited, and Stone, Limited, Toronto, the officers of the company state that the new organization will be carried on under the name and title of Rolph-Clark-Stone, Limited, with headquarters on Carlaw Avenue.

Wherever the Timber Trail Leads-



A Yates No. 108 Open-Side Moulder –

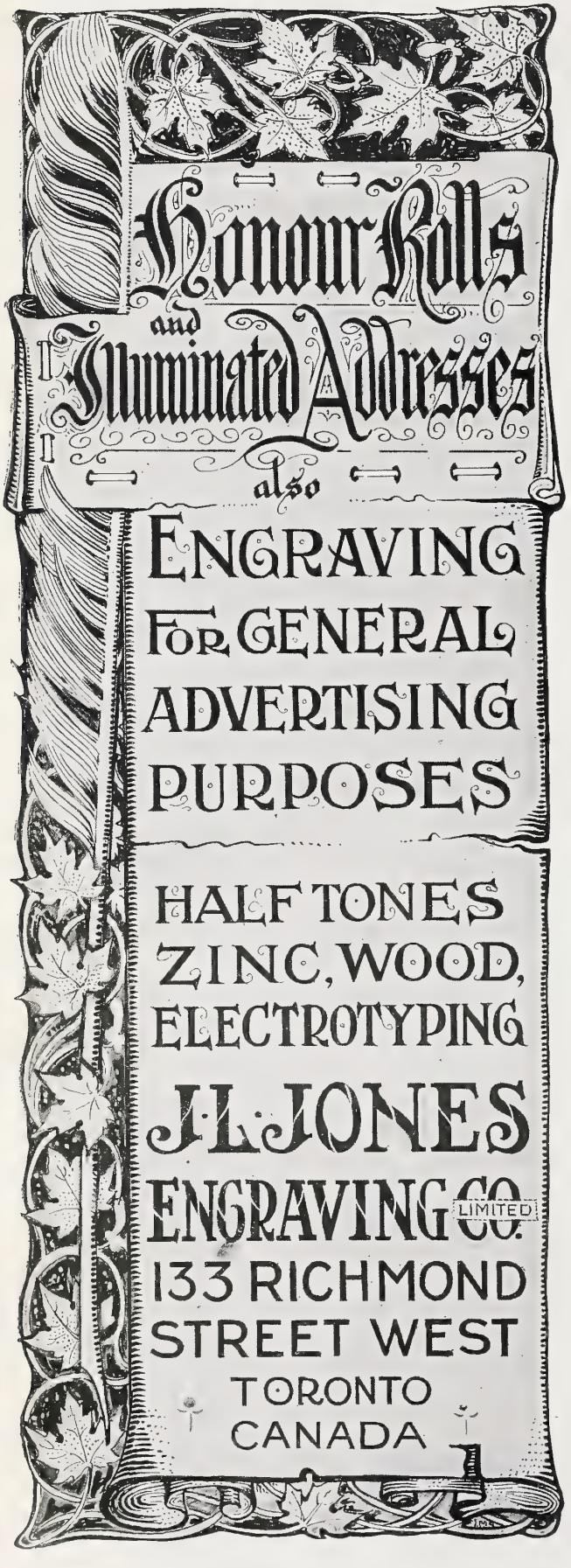
will be found, because this machine combines the good features of both the Inside and Outside Moulder, with none of the faults of either. It is an indispensable unit in more than 1500 mill equipments, North, East, South and West. It is the acme of durability and efficiency. It is synonymous with low upkeep and high profits.

Descriptive circular No. 108 sent you on request. Free and without obligation.

P. B. Yates Machine Company

BELOIT, WISCONSIN, U. S. A.

Canadian Plant with Offices Hamilton, Ont.



ITS CENTENARY STATEMENT.

Bank of Montreal Strikes New Records at the Close of Its Hundredth Year's Business.

Rather more than the usual amount of interest centred in this year's annual report of the Bank of Montreal, the institution having just celebrated its hundredth anniversary. The statement presented at the annual meeting was probably the strongest in all the century of the bank's existence, which is all the more surprising when war-time conditions are taken into account.

A closer examination would seem to indicate that as the Dominion, through the developments due to the war, has been thrown more and more on her own resources, that the Bank of Montreal, as bankers for the Government, has been carrying out a full share of the war undertakings. This is indicated by an increase during the year of over twenty-eight million dollars in the holdings of Dominion and Provincial Government securities, and by the opening of a new account under the heading of "Balance due to Dominion Government," amounting to $13,638,962, and possibly represents loans or advances made in connection with war-time undertakings of great magnitude. There has also been a notable gain of seven millions in the deposits in central gold reserve, this now standing at $14,500,000. At the same time the bank is gradually drawing in its resources in outside financial centres to meet the growing requirements in Canada as call and short loans are down close to one hundred millions, as compared with $113,000,000 a year ago.

The habits of thrift so strongly advocated are evidently bearing fruit with the Canadian people, as deposits bearing interest increased close to thirty-six millions during the year, or at the rate of close to three millions a month.

All the principal accounts established new high records. For the first time in Canada the assets of the bank have crossed the four hundred million mark, a gain of over $38,500,000 during the year. It is when one glances back a few years that one can realize the tremendous strides that have been made, as in 1910 assets amounted to $234,438,000, and in 1901 were less than one hundred millions. The bank maintains its exceptionally strong position by reporting liquid or quick assets of $276,298,397, equivalent to as much as 75.53 per cent. of liabilities to public, while cash on hand has increased to over fifty millions, equivalent to 14.04 per cent. of liabilities to public.

The increase in the requirements of the customers of the bank is reflected by a substantial advance in current loans and discounts to $97,607,404, as compared with $93,729,065 a year ago. Ever since the war broke out the tendency has been towards the contraction of current loans, but higher prices for raw materials are now tending to increase the requirements of the average manufacturer.

THE HOLE IN GERMANY'S POCKET.

"Germany's claim that she imports nothing, buys only of herself, and so is growing rich from the war, is a dreadful fallacy."

The speaker was Herbert C. Hoover, chairman of the American Food Board.

"Germany," he went on, "is like the young man who wisely thought he'd grow his own garden stuff. This young man was digging for about an hour when his spade turned up a quarter. Ten minutes later he found another quarter. Then he found a dime. Then he found a quarter again.

"'By gosh,' he said, 'I've struck a silver mine,' and, straightening up, he felt something cold slide down his leg. Another quarter lay at his feet. He grasped the truth—there was a hole in his pocket."



S. A. E.

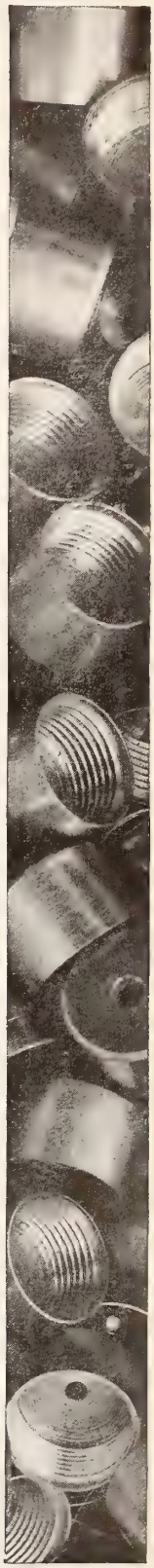
SCREWS AND NUTS

Also V. and U.S.
CAP and SET Screws

IN STOCK

Special Screw Machine Work from
Iron, Steel and Brass Bars
Sizes up to 2¼" diameter—10½" long.

THE NATIONAL ACME COMPANY
DE COURCELLES AND G.T.R. MONTREAL, P.Q.



"Canada—Who Cares?"

STRANGE as it may seem, this is an attitude—thoughtless perhaps—taken by some firms in Canada when buying goods, which can be obtained in our Country.

We know whereof we speak. Many of our friends have found themselves up against this proposition. There are actually some buyers who will send thousands of dollars out of Canada, if a very small apparent saving can be made.

We all preach, preach, preach, "Conserve resources, save money, save food, save the Country, save the Empire—build up our industries," and yet, do we practise what we preach?

If every Canadian buyer in this broad land would ask himself this question, and find the honest answer, the preaching might do some good. But without the honest answer, it would seem a waste of effort on the part of every well-meaning Patriotic Canadian.

Let us get this home to our people. We surely realize the necessity of keeping a full dinner pail for our workmen. Buying imported goods means working in the very opposite direction, and helping tear down our industries instead of building them up.

Salesmanship

Every man in business is a Salesman, and here is a proposition he should "SELL" to every man he meets. "Buy goods made in Canada."

This Company employs Canadian Capital, Canadian Workmen and uses Canadian Materials. Our proposition has commended itself to thousands of Canadian Employers, who use our recorders to protect their pay-roll. We are one of the firms that do practise what we preach: "Buy at home and keep the home fires burning."

INTERNATIONAL TIME SYSTEMS

International Business Machines Co. Limited

Time Recorder Division, 270 Dundas St., Toronto
FRANK E. MUTTON, Vice-President and General Manager
Also at Montreal, Winnipeg, Vancouver

"Time is Extremely Important"

In fact it's the ESSENCE of the contract.

A matter of extreme importance in the turning out of these shells for the American Government is production on time. The report of the manager of a company that has been in close touch with Washington thus sums up the situation for the average Canadian plant: "The Canadian manufacturer can get all the 3-inch high explosive shell orders from the United States that he can undertake; they will insist on deliveries right to the day; and the only basis for orders will be past performances."

Financial Post, Nov. 10, 1917.

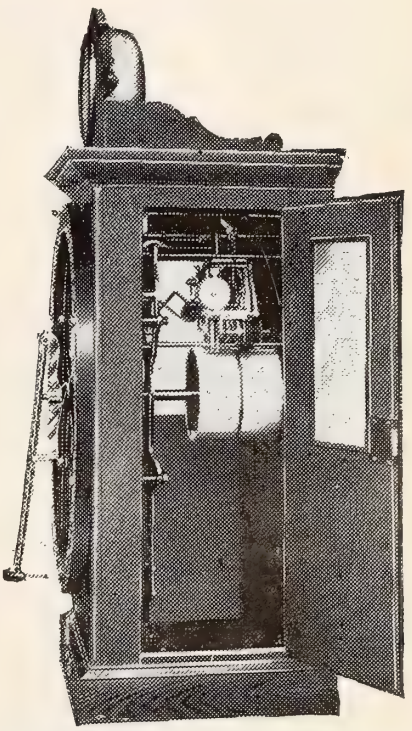
Of course Time is Extremely Important—was it ever anything else?

Was the manufacturer who recognized this fully ever anything else but successful?

Was the manufacturer who didn't know the value of time ever anything else but a failure?

The value of time—good, solid working time that you, Mr. Employer of Labor, have paid for is something we have been insisting upon day in and day out for years. Until the great "Time Leak" in the workshop is plugged our production will never reach its maximum.

Let us send you our latest folders.



A Modern "Double Drum" Recorder
You can take off yesterday's record without disturbing to-day's.

International Business Machines Co., Limited

Time Recorder Division, 270 Dundas St., Toronto

FRANK E. MUTTON, Vice-Pres. and Gen. Manager

Also at Montreal, Winnipeg, Vancouver

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

*Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.

ALBERTA.

Calgary.

The Alberta Flour Mills, Limited, will erect a new mill with a capacity of 6,000 barrels per day. It will be the largest individual mill west of the lakes.

BRITISH COLUMBIA.

Cranbrook.

Factory owned by the Cranbrook Sash and Door Co., Ltd., was destroyed by fire last month with a loss of $40,000.

Nanaimo.

The Granby Consolidated Mining and Smelting Company have secured additional coal producing areas between Ladysmith and Nanaimo, having recently acquired 300 acres. The company have two drilling crews at work. The coal will be used at the new coke producing plant to be erected at Anyox, at a cost of $1,500,000.

Princeton.

The oil flotation mill to be built near Princeton by the Canadian Copper Company will cost nearly $2,000,000, and will be finished in a year. It is estimated, says the *Mining Age*, that the assured ore measures 1,000,000 tons and the probable ore 2,000,000 tons.

Quatsino.

One of the large producers of shingles is the Whalen Pulp and Paper Co. This firm recently took over the old Davidson-Ward mill at Longborough Inlet, where it has twenty-two machines. It has ten more at Swanson Bay, where it also has a pulp mill, and five machines are to be installed at Mill Bay, head of Howe Sound, and ten at Quatsino, west coast of Vancouver Island, where it is establishing a very large industry.

Union Bay.

The Canadian Robert Dollar Co. has taken over the Anderson limits, near Union Bay, and the wharf there is being extended 200 feet. This company has shipped its first cargo on the steamer "Phyllis," which loaded 1,225,000 feet for Antofagasta.

Vancouver.

The Pacific White Lead Company is erecting a factory on Granville Island, Vancouver. It is understood that this concern have purchased a local plant for the manufacture of white lead and will devote their energies largely to the manufacturing of paints and varnishes.

R. R. Monk, representing the Pacific White Lead Company, of Montreal, recently visited Vancouver to make arrangements for the establishing of a lead and paint plant on the industrial island.

Vancouver Island.

The Robert Kelly herring canneries at Ucluelet and Toquart, west coast of Vancouver Island, have been purchased by the Lummi Bay Packing Company. This company, which has headquarters at Bellingham, controls large fishing interests in British Columbia waters. Apart from the Fraser district, this concern is operating a plant at the headwaters of Kitinat Lake, and it is proposed to erect a cannery at Cowichan.

Victoria.

Plans for the utilization of the waste sawdust from Victoria lumber mills are being worked out by city hall officials at Victoria, at the suggestion of one of the aldermen. The Canadian Explosives, Ltd., at its outer wharf plant, is using a 70 h.p. gas engine, the fuel for which is provided by distillation of sawdust from the mills, five tons being its daily consumption.

NEW BRUNSWICK.

Dalhousie.

The P. Q. Lumber Company is erecting a large saw mill here.

Moncton.

The Victoria Garage and Motor Co., Ltd., Victoria St., contemplate the erection of a plant and addition to the old building.

St. John.

The St. John Shipbuilding Co., of which Thomas Nagle is manager, and which numbers among its directors some of the wealthiest men of Eastern Canada, have negotiated for a yard site on Courtenay Bay, adjacent to the Grant and Horne yard, and are now having it surveyed by marine engineers. This company propose building ships of both wood and steel.

Factory owned by the Consumers' Sack Supply Co., 275 Sydney St., totally destroyed by fire.

South Bay.

The lumber manufacturing plant owned by John E. Moore, valued at more than $100,000, was totally destroyed by fire.

NOVA SCOTIA.

Amherst.

The International Engineering Company contemplate the erection of a $4,000 addition to their moulding shop on Laplante Street.

Bridgewater.

The Gray Marine Motor Company contemplate the erection of engine works.

For your assistance in conservation of Toronto Hydro Current

The Toronto Hydro-Electric Commissioners thank their customers for their consideration in abating the use of current wherever feasible. This is assisting us to give the utmost amount of current possible, during the present current shortage, to manufacturers of war supplies and other essential industries. The hours of greatest power scarcity are from dusk until 6.00 p.m., and your continued co-operation will be very welcome indeed.

Toronto Hydro-Electric System

282 Yonge Street Branch—Gerrard and Carlaw

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Guaranteed to stand Government Test.

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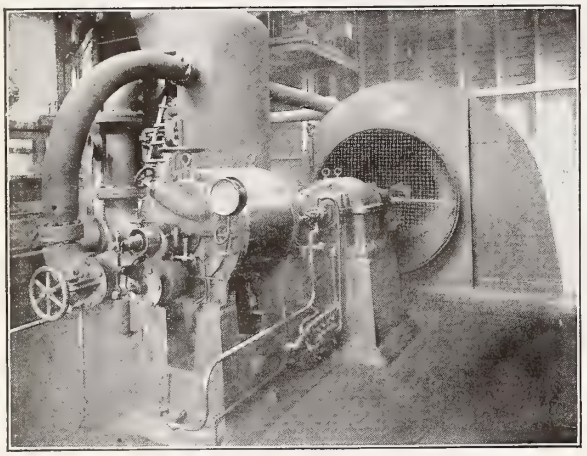


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COTTON AND JUTE ROPE

MILL & SPINDLE BANDING, etc., etc.



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Turbo-Conoidal Stoker Fans

which has replaced slow-speed blowers driven by reciprocating engines.

Heavy, rigid construction enables these fans to run continuously at speeds suitable for motors and turbines, and at good efficiencies with all loads.

Send for names of users.

Canadian Blower & Forge Co., Kitchener, Ont.

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LIMITED
Engineers and Manufacturers
MONTREAL, CANADA

Branches: Toronto and Winnipeg

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STEEL FACTORY EQUIPMENT



Steel Shop Boxes, Foundry Boxes, Shelf Boxes, Shop Barrels, Stools, Oily Waste Cans, Garbage Cans.

Gasoline Tanks and Pumps, Pressure Tanks, Storage Tanks, Smoke Stacks.

Anything in Black or Galvanized Sheet Metal up to ⅛ thickness. Send blue print or rough drawing and get our prices.

Sheet Steel Sundries for manufacturers is one of our specialties.

Write us

The Steel Trough and Machine Co. Limited

TWEED, ONT., CANADA

Comeauville.

The Comeau Shipbuilding Co., Ltd., contemplate the erection of a shipbuilding plant. Secretary-treasurer, E. L. Comeau.

Dartmouth.

It is reported that the Kent Shipbuilding Co., of St. John, N.B., is interested in another concern which proposes establishing a shipbuilding plant at Tuft's Cove, near here.

The Canadian Carbonate Co., Ltd., 132 Hollis St., Halifax, will erect a plant instead of the Liquid Air Co., Ernest St., Montreal, as previously reported.

New Glasgow.

The Nova Scotia Steel & Coal Co., Limited, contemplate extensions, repairs, etc., costing $4,000,000.

Saulnierville.

The Acadian Shipbuilding Co., Ltd., contemplates the establishment of a shipbuilding plant. Secretary-treasurer, Denis D'Entremont, Meteghan River.

ONTARIO.

Aylmer.

The Aylmer Shoe Company, Myrtle St., contemplate the erection of a three-story brick addition to their factory.

Brantford.

The Kitchen Overall and Shirt Co., Limited, 11 Queen St., have started on alterations to their factory costing $8,000.

Bridgeburg.

The Canadian Allis-Chalmers Co., Ltd., King and Simcoe Sts., Toronto, are making repairs to their shipyard.

Dundas.

A large staff of workmen are now engaged in the construction of an addition to the plant of the Pratt & Whitney Company, on Hatt Street, Dundas, Ont. The work will be probably completed before the spring.

Essex.

The Essex Tractor Co. contemplate the erection of a $10,000 concrete and brick factory.

Galt.

The Canada Machinery Corporation will erect a steel and brick extension to their plant on Water Street South. In view of the present high cost of structural steel and the difficulty of obtaining such material, the company are utilizing the building owned by them in Hamilton and this structure is being dismantled and re-erected in Galt. This extension will give the company about 24,000 square feet additional floor space and will give employment to one hundred additional workmen.

Guelph.

The Gilson Co. plans to extend its plant.

Hamilton.

Contracts have been let for a $20,000 factory for the Canadian Fasteners, Limited.

General contract has been awarded for $25,000 addition to factory for the Canadian Shovel Company, Imperial Street.



CANADIAN WIRE ROPE

MANUFACTURED BY

The DOMINION WIRE ROPE COMPANY, Limited

Branch: Mail Bldg., TORONTO. Head Office: MONTREAL.

DOMEKO



BABBITT



Next time you buy Babbitt, buy Domeko. You'll find it very much superior to the common run of Babbitts. In fact you'll find it to be everything that a babbitt ought to be—especially on the places where ordinary babbitt falls down on the job. **Mill Supply Men are invited to write us for our Special Jobbers' Proposition.**

Dominion Metal Company, Limited

FOSS & HILL MACHINERY COMPANY
305 St. James St., Montreal, Que. Selling Agents for Montreal

Sherbrooke, Que.

The Safest Matches in the World

Still another improvement has been made to Eddy's "Silent 500s." Each stick is impregnated with a chemical solution that prevents the wood glowing or smouldering after the flame is blown out.

Eddy's "500s" strike easily, quickly and silently, on the box or elsewhere. But once blown out they are extinguished ***absolutely.***

These are the matches to use in home, office or factory—the matches that mean the greatest convenience with danger of fire reduced to the lowest point conceivable.

The E. B. Eddy Company, Limited

HULL - QUEBEC

Established 1851

Hamilton—Continued.

Work has been started on the new by-product coke ovens being erected here by the Steel Company of Canada. Altogether some eighty of these ovens are to be built. They are of the most modern type, and will have a capacity of from 300,000 tons to 400,000 tons per annum. It is expected that the process of turning the coal into coke will give by-products of considerable value to the company. The work of construction will be carried on as speedily as possible.

The Industrial Department announces that the Robert H. Hassler, Ltd., manufacturers of the Hassler shock absorbers for Ford cars, have decided to locate their Canadian factory in Hamilton. The American factory, which is located in Indianapolis, Ind., is swamped with orders from Canada, the F. G. Morris, Ltd., of this city, who are the Canadian distributors of the Hassler shock absorbers, having twenty-eight cars on order with the Indianapolis factory at the present time. Mr. J. C. Piper will be the managing director of the new company. Fred. Morris of the F. G. Morris, Ltd., has worked hard to have this factory located here, and much of the credit for Hamilton securing this factory is due to his untiring efforts. A building on Sherman Ave. N. has been leased and operations will be started immediately with a staff of about 25 employees.

The Canadian Cotton Company, James St. N., have awarded contracts in connection with their $60,000 factory addition.

The Frost Wire Fence Company are erecting a $25,000 one-story brick factory addition.

Leamington.

By a vote of 300 for to 46 against, Leamington ratepayers have carried a by-law to raise $4,500 to secure the acreage of sugar beets necessary for an $800,000 sugar factory, which Mr. Bricker, formerly of Kitchener, now of Detroit, plans to erect here.

Lindsay.

H. E. Hunt, of Chicago, Ill., has been here for the purpose, it is said, of looking over the town with a view to establishing a Canadian factory for the manufacture of a special brand of leather for use in automobiles, upholstering, etc.

Listowel.

Malcolm, Andrew Furniture Co., Ltd., will erect a $7,000 one-story brick factory addition.

Niagara Falls.

The Lundy-Scott Company, Limited, are erecting a $30,000 factory.

The factory at Niagara Falls, Ont., jointly occupied by the Davis-Bournonville Company and the Davis Acetylene Company, has been taken over by the first-named concern, and will be operated exclusively for the manufacture of oxy-acetylene apparatus for the Canadian trade.

Oshawa.

Council are considering the loan of between $30,000 and $35,000 to a company who contemplate the erection of a shoe factory here.

Owen Sound.

The Union Cement Company contemplate a considerable extension of their operations at Owen Sound, Ont. They propose equipping the old Sun Building with a plant having a capacity of 2,500 barrels, to be ready for operation in 1919. There are difficulties as regards obtaining the necessary steel machinery, owing to the condition of the steel market, but the company is negotiating the purchase of second-hand plant.



SERVICE

That is not idle words.

QUALITY

That is second to none.

This is all we have to offer—could we offer more?

VICTOR SAW WORKS, Ltd.

HAMILTON - ONTARIO

SHORTAGE SKILLED LABOR, FIREBRICKS and COAL

THESE ARE BAD NOW AND GOING TO BE MUCH WORSE!

Why continue using unsatisfactory Firebricks and Fireclay when you know their shortcomings? Be up-to-date. Use without skilled labor.

PLIBRICO—One-piece Plastic Jointless Firebrick for all purposes where heat does not exceed 2,500 degrees to 2,800 degrees.

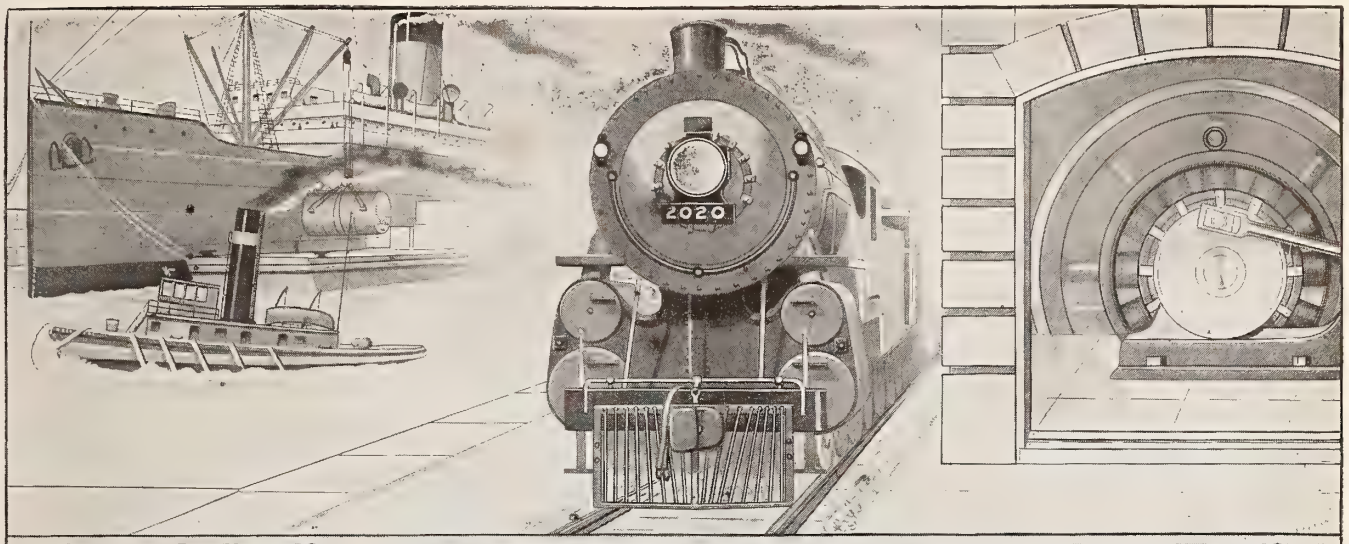
AMMUNITION PLANTS—Try Plibrico in your Nosing Furnaces.

PLIBRICO BOND—High temperature cements will stand 3,100 degrees to 3,800 degrees F. In three qualities—for wide and fine joints using firebrick, as a plaster on surface bricks, and bonding silicate bricks.

PROTECTO AND PROTECTOCOAT—Boiler preservatives for interior and exterior use. Will reduce your coal bill a great deal.

Beveridge Paper Co., Ltd., Montreal and Toronto

AGENTS COAST TO COAST



GARLOCK PACKINGS ARE USED EXTENSIVELY BY THE GREATEST RAILWAY AND STEAMSHIP LINES AND IN THE LARGEST STATIONARY POWER PLANTS THROUGHOUT THE WORLD

IN THE THREE GREAT BRANCHES OF STEAM ENGINEERING

Where speed and economy are paramount, where a hot rod or blown-out gasket might mean a schedule broken or contract lost,

GARLOCK PACKINGS

are used generally. Under the most trying conditions of service Garlock Packings have proved their superiority. Let us suggest a cure for that rod or joint that "won't stay packed." We invite you to submit your packing problems.

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The "PRIVATE OFFICE" All-Steel Wardrobe



AS the name implies, this is a super-quality piece of steel equipment intended for the exclusive use of executives and heads of businesses.

It is the finest example of the nationally-known line we market under the name

DENNISTEEL
Made in Canada

Built entirely of high-grade furniture steel and given a superb finish, in baked-on enamel, either rich olive green, rubbed oak or mahogany, to match woodwork.

The quiet dignity and evident quality of this fireproof, convenient wardrobe will fit in with the most costly interior furnishings.

For employees, we make dozens of other less expensive styles, all fireproof, all space economizers, all money-savers.

May we send illustrated information ?

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
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MADE IN CANADA

Blacksmiths' Boiler Makers' Machinists' AND Pipe Fitters' Tools

Write for Catalogue

A. B. Jardine & Co.
LIMITED
HESPELER, ONTARIO

Port Arthur.

J. J. Carrick, 13 Cumberland Street N., contemplates the erection of a pulp and paper mill.

Port Bruce.

Hales & Black contemplate the erection of a packing house, etc.

St. Catharines.

Factory owned by A. L. Florence, Dalhousie and Redpath Streets, destroyed by fire. Loss, $30,000.

Paper mill owned by the Kinleith Paper Company, Welland Canal, was damaged by fire last month.

St. Thomas.

The St. Thomas Packing Company have let contract for $10,000 plant and stock pens.

Sarnia.

The Port Huron plant of the Mueller Manufacturing Co., Ltd., is fast assuming definite shape. The foundations for the foundry and extrusion buildings are under way, and steel erection will commence immediately. Plans are now being prepared for the power-house, a building 60 ft. by 100 ft.

Toronto.

The B. J. Johnson Soap Company, Ltd., are erecting a factory on Natalie Street, Toronto, at a cost of about $100,000. The new structure will be 200 feet long and 82 feet wide, with a floor space of 48,000 square feet. It is proposed to erect two stories and basement now, and to add four additional stories later.

General contract has been awarded for a $22,000 addition to cooler building for the Swift Canadian Company, St. Clair and Keele Streets.

Contracts have been awarded in connection with the erection of an $80,000 chocolate factory and warehouse for the Willard Chocolate Company, Ltd., 260 Spadina Ave.

The Cluff Ammunition Company, whose building was destroyed by fire recently, have taken out a permit to rebuild at 28 Atlantic Avenue. Estimated cost, $20,000.

Arrangements have been made for the establishment of a new industry in the Toronto harbor district by the Dominion Shipbuilding Company. The site leased to the company is on the water-front, between Spadina Avenue and the old Queen's Wharf, and comprises 15½ acres. Buildings, slips, and drydocks will be constructed, and the firm will employ about 2,500 men.

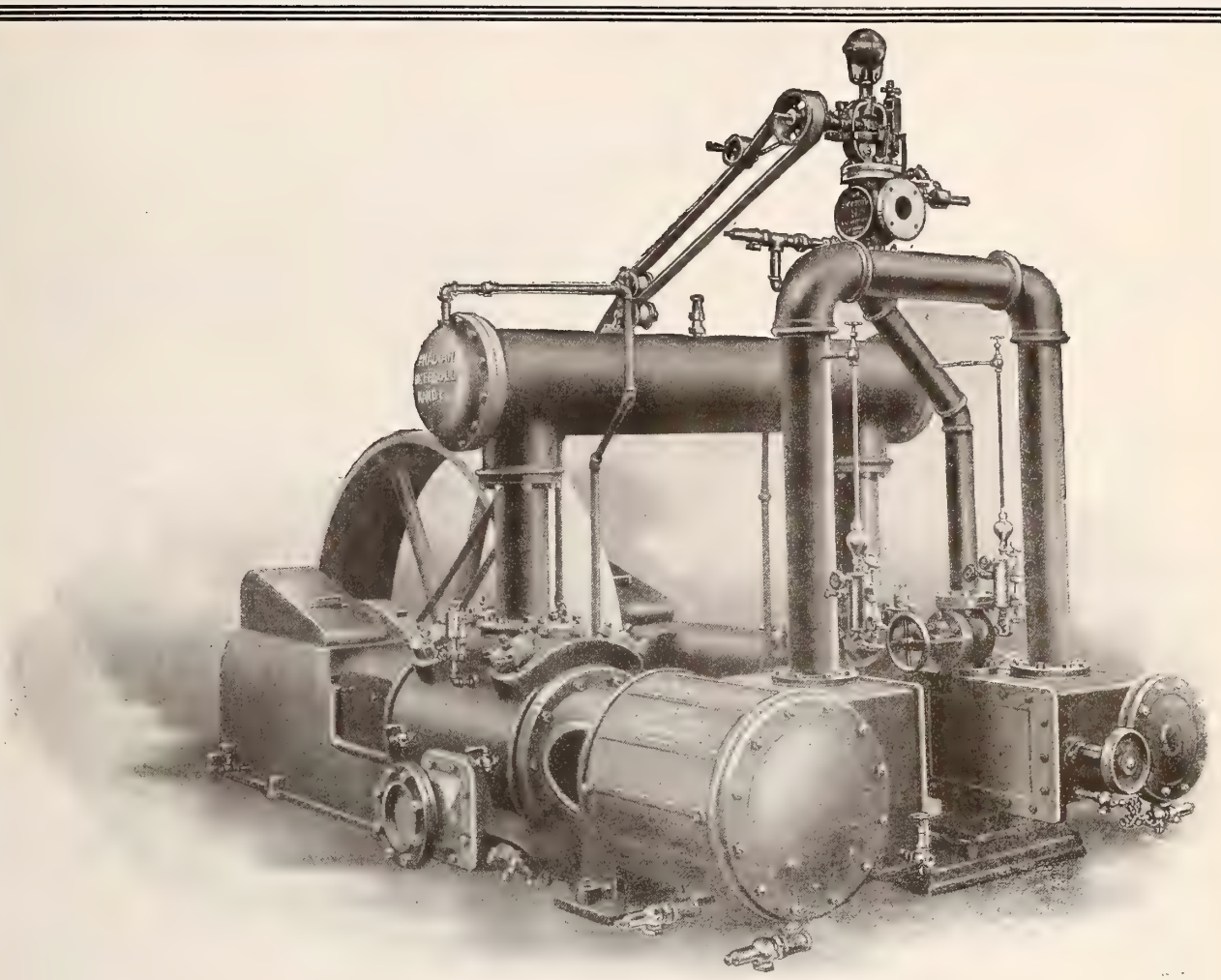
Adams Brothers Harness Manufacturing Company, 204 King Street E., contemplate the erection of an addition to their factory.

The Polson Iron Works, foot of Frederick Street, are erecting a $10,000 galvanized iron and frame pattern mill and joiner shop.

The new building for the Prestolite Company is about completed. The new factory will have four stories, and is modern in every respect.

Welland.

The four plants of the Canada Foundries and Forgings Company are working almost to capacity, both on war orders and on ordinary business. The company recently obtained an order for 500,000 shells from the United States. The first delivery was to be made on December 15th; delivery was



Class "RL-3," Duplex Type, Steam Driven, Two Stage Air Compressor with Intercooler. Equipped with Speed and Pressure Governor, Meyer Adjustable Cut-off on High Pressure Steam Cylinder, Dust-proof Construction, Splash and Flood Lubrication System, and "Circo" Silent Leaf Valves. Two Sizes: 732 and 1,160 cubic feet displacement respectively

High Economy Without Complexity

Superior efficiency is obtained by the use of "Circo" silent leaf valves, and valve maintenance is very simple and inexpensive.

Liberal water-jacketing and intercooler surface do their part also in reducing power losses to the lowest practical degree.

The adjustable steam valve gear enables the steam consumption to be graded to suit the steam pressure and the load, resulting in an economy of steam closely approaching that of the releasing type of valve gear. The flood system of lubrication automatically insures the highest degree of economy in the use of oil.

Estimates on complete installations, bulletins, etc., will be gladly furnished on application. Address our nearest Branch Office.

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BRANCHES :
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Nelson, B.C.
Vancouver, B.C
New York, N.Y.

Welland—Continued.

given a month ahead of time, and as a result the company obtained another order for 500,000 shells. The Brockville plant has enough business to keep it going until May 1st, 1918, and the two Welland plants have orders which will keep those factories busy until January 1st, 1918. While it is turning out war orders, domestic and export trade have not been neglected.

West Lorne.

Bernard C. Weisbrood, care of Trimming and Embroidery Co., Ltd., 442 King Street W., Toronto, has awarded the general contract for a $10,000 textile factory.

Weston.

The Town Council granted a fixed assessment to the K. & S. Canadian Tires, Ltd. The company contemplates an expenditure of about $200,000.

Whitby.

On November 26th a by-law was submitted to the ratepayers of Whitby, Ont., regarding the establishment of a factory in that town by the United Rubber Manufacturing and Reclaiming Company, Ltd., of Toronto. Under the terms of the agreement the company is to erect a building 60 by 160 feet, the total cost of which, when completely equipped, is to be $50,000, while the town will loan the firm $25,000, allow tax exemption privileges and grant fixed assessment of $10,000 for ten years. The factory is to be ready for operation about March 1, 1918.

QUEBEC.

Hull.

Matthews-Blackwell, Ltd., Hull, and 44 Nicholas Street, Ottawa, contemplates the erection of a factory addition.

Joilette.

La Compagnie Canadienne de Papetrie, Ltee., will erect a $6,000 one-story brick factory for which foundations are in.

Maisonneuve.

J. I. Chouinard, 330 Notre Dame Street E., will erect a $100,000 factory.

Montreal.

The John S. Metcalf Company, Ltd., Montreal, have under consideration the building of concrete vessels. Mr. H. Rolph, the president, has gathered a large amount of data from the United States and Europe, and has also been in conference, in New York, with the principal of a Norwegian firm specializing in this department. If it is decided to go ahead with the building of vessels, Mr. Rolph will visit the Maritime Provinces with a view to obtain shipbuilding sites. The idea is to build the hulls and not to manufacture the necessary equipment. The Atlas Construction Company, Montreal, have an experimental concrete ship under construction.

Warehouse owned by the Montreal Cotton and Wool Waste Company, Ltd., 173 Common Street, totally destroyed by fire.

The American International Shipbuilding Corporation has placed an additional large contract for fabricating structural steel, to be used in building cargo boats for the Government, with the Dominion Bridge Company. The two orders thus placed amount to 40,000 tons of steel plates and shapes. The fabrication of this steel will take up the entire capacity of the Toronto and Montreal plants for ten months.

Factory owned by the Canadian Hat Manufacturing Company, 321 Notre Dame Street W., and the Yale Bedding Co., 323 Notre Dame Street W., destroyed by fire.

Contract has been awarded in connection with the $25,000 factory addition for the A. R. Whittall Can Company, Ltd., 740 Mullins Street.

The Dominion Cement Company, Ltd., 92 Notre Dame E., contemplate the erection of a cement plant.

The Dominion Bridge Company, Ltd., 285 Beaver Hall Hill, contemplate the erection of a forging plant.

The Holland Varnish Company are erecting a one-story mill and brick factory at the corner of Park and Atlantic Avenues.

Quebec.

The Citadel Brick & Paving Block Company, Ltd., 42 Dalhousie Street, are erecting a zig-zag continuous kiln, and are in the market for a quantity of material.

The large dry-dock on the St. Lawrence is now nearly completed. The boilers and machinery have been tested, the new gates are in position, and the coffer-dam, or false gate, blown up. Within a few weeks it is hoped to fill the dock for the first time, but as the approach has not been thoroughly sounded, it is not expected that any ship will enter the dock this year.

The J. B. Drolet Company, Ltd., will erect a $20,000 factory.

Condensed Advertising

FACTORY FOR SALE.

Brick Building, in live city within fifty miles of Toronto. About 40,000 sq. feet floor space; well lighted on all sides; completely equipped power and heating plant. Building facing main line railway presents excellent advertising possibilities. Suitable for wood-working or light manufacturing. Write for particulars, Box 622 INDUSTRIAL CANADA.

NEW LINE WANTED.

Leading Manufacturer, with Sales Office in Vancouver, and aggressive staff of Salesmen covering all points in British Columbia, wants one new line. Excellent connection with Retail and Wholesale Dry Goods Trade. Manufacturers wanting British Columbia representation that will bring results, please communicate with Box 842, INDUSTRIAL CANADA, Bank of Hamilton Building, Toronto.

FOR SALE.

1 (one) No. 5 and 1 (one) No. 10 Torris Wold & Company Inclinable Power Press, together with a considerable quantity of Combination Dies. Write P. Burns & Company, Ltd., Calgary, Canada.

CAPITAL WANTED FOR ESTABLISHED BUSINESS.

Ten thousand dollars are required for the development of a present business which is manufacturing household articles of large demand and increasing use. Write for particulars of this business investment to Box 966, INDUSTRIAL CANADA, Toronto.

Put it up to us

before you place your order for

SHEET METAL STAMPINGS

and

PRESSED STEEL PARTS

A battery of over 50 presses is available for your work.

Our facilities ensure prompt deliveries at right prices.

W. H. BANFIELD AND SONS, LIMITED

370-386 Pape Ave., Toronto

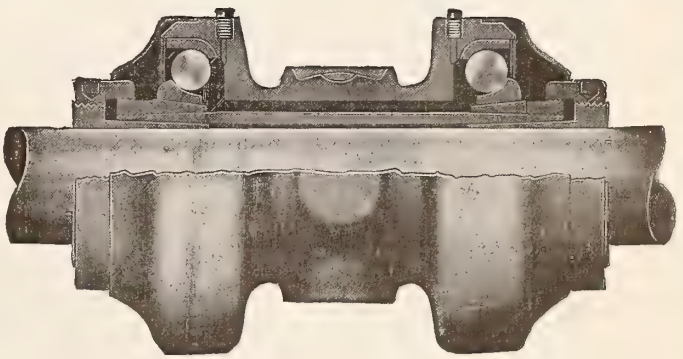
YOU CAN INCREASE YOUR POWER WITHOUT INCREASING THE SIZE OF YOUR POWER PLANT

Your present line shafting is consuming from 15% to 60% of your power.

The Chapman Double Ball Bearing will save this waste and turn it into productive energy.

They will also reduce your oiling and attention to a minimum.

They fit any adjustable hanger and the change can be made with but little delay to you.



In use in over 2,000 Canadian Factories

The Chapman Double Ball Bearing Company

OF CANADA LIMITED

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LINK-BELT

LINK-BELT is made in a variety of types, each suited to specific duty in elevating, conveying and power transmission. We are the manufacturers of the original Ewart Link-Belt, as well as numerous other types.



"C" Class Link-Belt
For handling gritty and abrasive materials.

Submit your problems for the handling of materials in bulk or packages to us for solution. We can devise simple systems for elevating and conveying that will save labor and time in your plant.

This is the

Mark of Quality

It appears on every Link-Belt manufactured by us, and is your guarantee of reliability in material, workmanship, inspection and service.

CANADIAN LINK-BELT CO., LTD.

Manufacturing Plant and Offices at
265 WEST WELLINGTON ST.
TORONTO

Three Rivers.

La Compagnie de Breton Special will erect a $30,000 one-story plastic brick factory, and want quotations on plastic brick, concrete block for doors, windows, etc. Manager, Alcide Lebrun, N.P.

The Three Rivers Box Company are erecting a $60,000 box factory.

A by-law has been issued to guarantee to La Cie de Produit en Béton Special, Limitée, of Three Rivers, bonds to the amount of $20,000 to build a plant within the limits of the city.

SASKATCHEWAN.

Carlyle.

The Saskatchewan Creamery Company, Cariboy and Second N.W., Moose Jaw, contemplate the erection of a creamery. Address, L. Trimble.

Catalogues and Booklets

A NEW STOCK LIST.

A new stock list of brass and copper rod, tobin bronze rod, phosphor bronze rod, brass and copper sheet, tubing, cast phosphor bronze and cored and solid bars has just been issued by the Tallman Brass & Metal Company, Hamilton. These goods are ready for immediate shipment.

RUBBER BELTING FOR ALL PURPOSES.

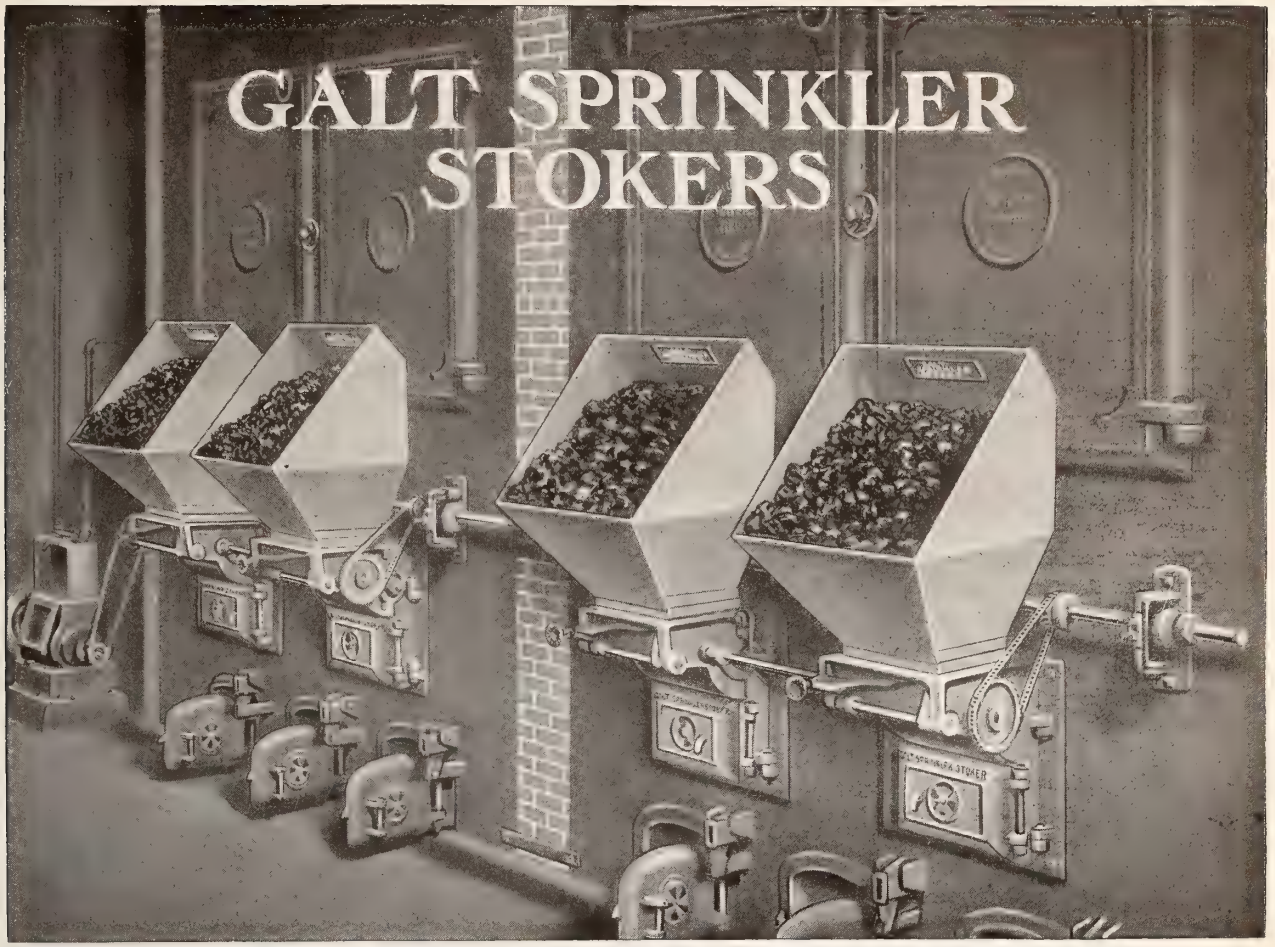
A handsomely produced catalogue dealing with the production, uses and advantages of Dunlop rubber belting has been issued by the Dunlop Fire & Rubber Goods Company. After referring to the excellences of rubber belting, the catalogue deals with transmission belts, conevyer belts, elevator belts and special belts in detail. Instructions are given as to how to make belts endless by splicing, on belt lacing and on other points in connection with operation. There are many illustrations in color and altogether the catalogue is well worth having on file.

ADJUSTABLE SPEED MOTORS.

From the Canadian General Electric Company comes an illustrated bulletin dealing with adjustable speed motors. The advantages of this type of motor are set forth in detail and its component parts are individually described. A diagram gives a complete picture and description of each part, and there is also a useful schedule of dimensions.

THE VALUE OF A PLANT.

There has been published in pamphlet form by the American Society of Mechanical Engineers, an address delivered at the annual meeting of that organization by Charles Piez, President of the Link-Belt Company, Chicago, on "The Relation Between Perpetual-Inventory Value and Appraisal Value." This is a paper which will be found of deep interest to all manufacturers, and doubtless copies may be had on application. Mr. Piez says that every manufacturer ought to know the exact value of his plant "for insurance purposes, for financial purposes, for every purpose that has anything to do with the safe conduct of your business."



Galt Sprinkler Stokers Applied to two 300 H.P. Water Tube Boilers. Since the Above Photograph was taken Additional Boilers of this Plant have been Equipped with Galt Stokers.

When Coal Costs So Much Why Waste It?

A BIG SAVING IN COAL BILLS FOLLOWS THE INSTALLATION OF

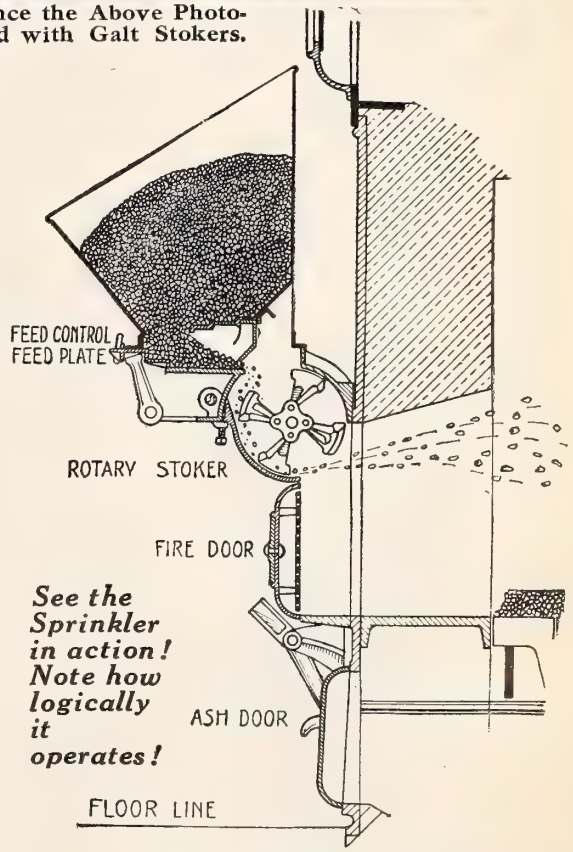
Galt Sprinkler Stokers

And the present day coal prices more than warrant the installation being made now. Cost less than half of other stokers.

Send for Illustrated Catalogues

Galt Foundry Co., Galt, Ont.

Toronto Office—826 Traders Bank Building Phone Main 4362



See the Sprinkler in action! Note how logically it operates!

The Galt Sprinkler Stoker automatically feeds and uniformly spreads the fuel to the furnace in a light continuous stream and gives a perfectly level fire, 3 to 4 inches thick.

VALUABLE REFERENCE BOOK.

Imperial Year Book for Canada. 1917-18 (Third Edition). 640 pages, cloth. Three dollars. The Mortimer Co., Ltd., Ottawa.

In this handy volume of 640 pages, are condensed most of the main facts and figures about the War, the Nation and the Empire, that it is important for us to be familiar with just now. Perhaps the most striking thing about the *Imperial Year Book*, next to its remarkable compression of so much data on such a variety of subjects into so small a compass, is its interest. A book of statistics is generally regarded as a dry volume to be consulted and closed in the shortest possible time. This book satisfies the most exacting requirements from the time-saving standpoint. Its admirable classification, effective typography and elaborate index, enable the busy, who hate to waste time, and the lazy, who wish to avoid exertion, to locate the required information with the minimum of effort.

This is the third edition (the first was produced in 1914), and it is a distinct improvement on its predecessors. The editor's purpose from the first has been to establish a work of reference that would be truly national, and the 1917-18 issue should mark the achievement of this purpose, for it appears at the very moment when public events combine to make the need of such a publication felt by every thoughtful citizen.

The book is divided into three principal sections: The Dominion of Canada, which occupies 384 pages; the British Empire, to which are devoted 151 pages; and the War, which fills 63 pages.

The best work of reference fails of its purpose without a good index, and in this respect the volume before us certainly measures up to a high standard. The Index is wisely divided into two parts—General and War Section—the former containing some 3,750 references and the latter nearly 600.

FOREMEN AS SAFETY PROMOTERS.

His Opportunity to Guide and Instruct is Greater than that of Any Other Official.

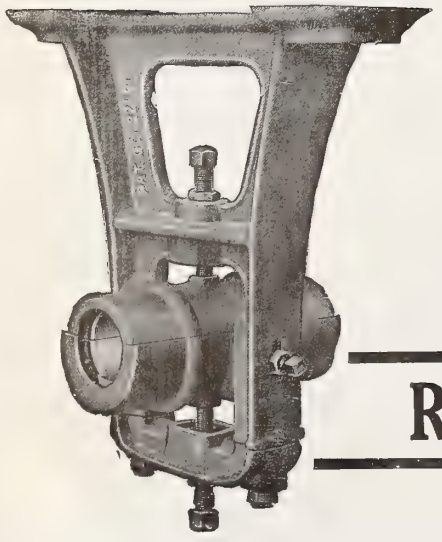
The position of the factory superintendent or foreman in accident prevention is enviable, asserts the *Manufacturers' News.* No other men in industrial organizations are as well situated to control the accident record.

Nearly all accidents are due to recklessness or ignorance. Therefore, accident prevention must come through supervision; and where can this supervision come from as easily, as logically, as forcefully and as efficiently as from the superintendent or the foreman?

These men, or their assistants, who have supervision over one or more fellow employees, know when they are working under conditions dangerous to themselves or to others. When any of their men perform an unsafe act, they are the first to see it and correct it. Theirs is truly a work of leadership and of guidance.

The foreman is not unlike the shepherd of old, whose duty it was to lead the flock, not only into pastures which were bountiful, but pastures which were safe. The foreman's record is made up no more of what his men have done than how safely they have done it. His responsibility is great. Through his superior knowledge and experience, it is natural that his men look up to him and depend upon him for their safety. *What an opportunity is born of that trust!*

Bond Hangers



How Much Does a Hot Bearing Cost?

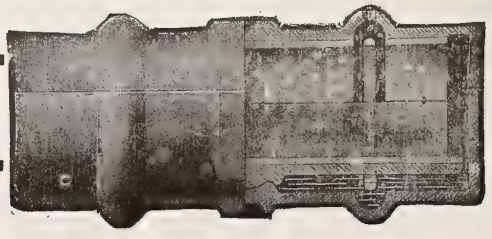
How much, in lost output and lost wages? For the cost of repairs is only a small item. Any way you figure, a burnt bearing is expensive.

Bond Hangers cut this danger to a minimum. They are designed with a ring oiling device that insures positive lubrication, yet does not waste oil. The reservoir, once filled, requires no special attention for six months, at least. The universal adjustment easily corrects any misalignment in the shaft line—so that the bearing wear is very slight.

Buy Bond Hangers next time. And get our catalog on Power Appliances now, for reference.

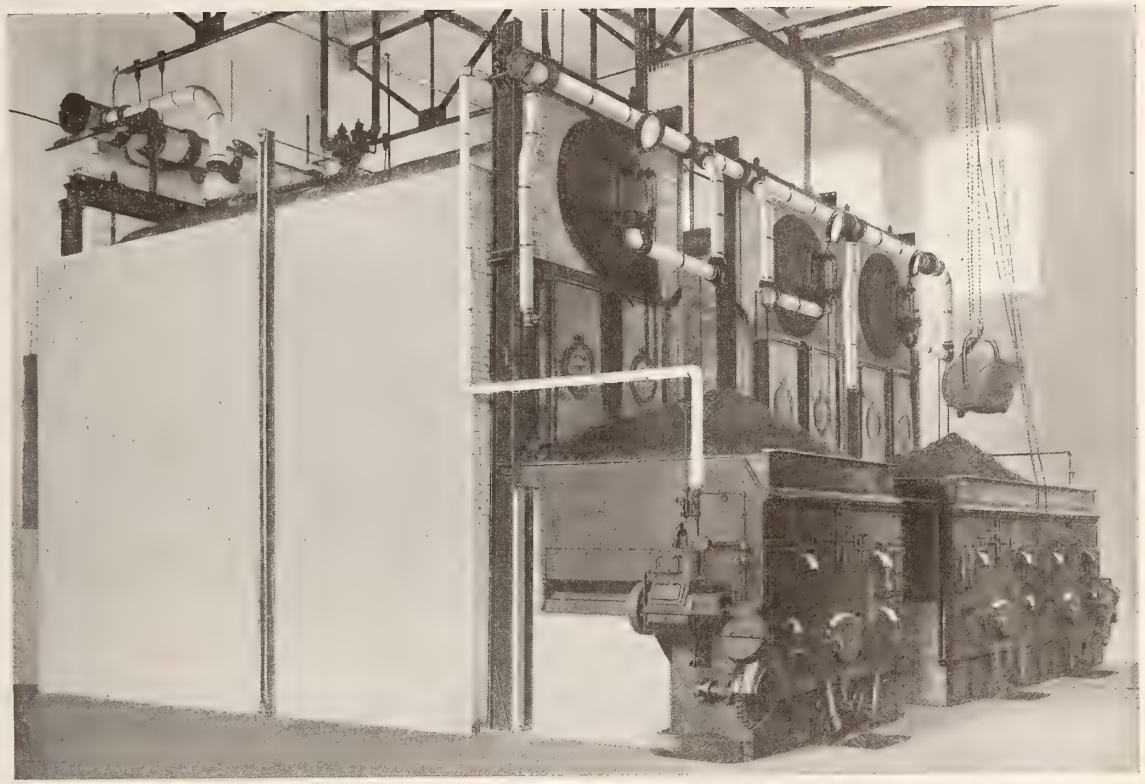
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Dust Is a Dangerous Hazard

By W. G. CLARK

(Reprinted from the "Manufacturers' News")

ANY dust is a menace to health. A well-known New York physician has said: "Dust is man's worst enemy." And many accidents can be attributed to employees working in dusty atmosphere. The bad results of inhaling dust-ladened air, of all kinds, are hard to correctly determine.

Dangerous dust can be classified under three heads: Poisonous, explosive and irritating, all of which cause the loss of life, limb and property.

However, any dust is injurious, more or less, to the health and life of employees compelled to work in same. No dusty air is pure air, and pure air is necessary for good health. Industrial diseases and loss of time are often the direct results of impure air.

Dust Means Revenue Loss.

The firm owning and operating a plant in which dust is floating around in the atmosphere should protect himself and employees in eliminating the danger, because the elimination is always a source of revenue to himself, represented in material saved; also the better class of work obtained from the workmen and the saving in wear and tear on surrounding machinery and property. The employer has also better protection from fire loss and explosion, and the loss of men's time due to sickness and disease caused by inhaling this impure, dusty air.

Impure air breeds disease.

Dust carries deadly germs.

It affects the brain, lungs, eyes and causes headaches.

Every person should have at least twenty-five cubic feet of fresh air per minute.

The Board of Health of New York City, a few years ago, investigated the causes of mortality in their city and reported that "40 per cent. of all deaths was caused by breathing impure air."

Reducing the Death Rate.

A report of carefully collected data proves that death rates have been reduced by introducing good ventilating and dust collecting systems in dusty plants, from 60 per cent. to 5 per cent., and ventilation in prisons from 80 per cent. to 9 per cent. In hospitals from 44 per cent. to 13 per cent.

One person in ten in the United States dies of consumption in spite of the National war waged against it.

Fresh, pure air is indispensable to good health.

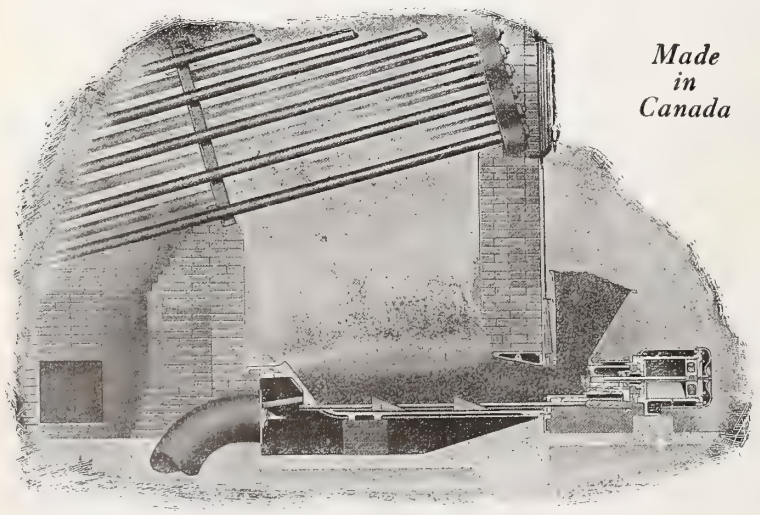
One prominent plant claims, since putting in a dust collecting system, the absence of employees from work has been reduced 85 per cent.; they also add that a better day's work was obtained from their employees, and more harmony and satisfaction among their men and women employees prevail.

Men working in dusty and impure air are slowly committing suicide.

It is hard to keep men at work in dusty plants.

Jones Underfeed Stoker

Cuts 15% to 25% Off Your Fuel Bills



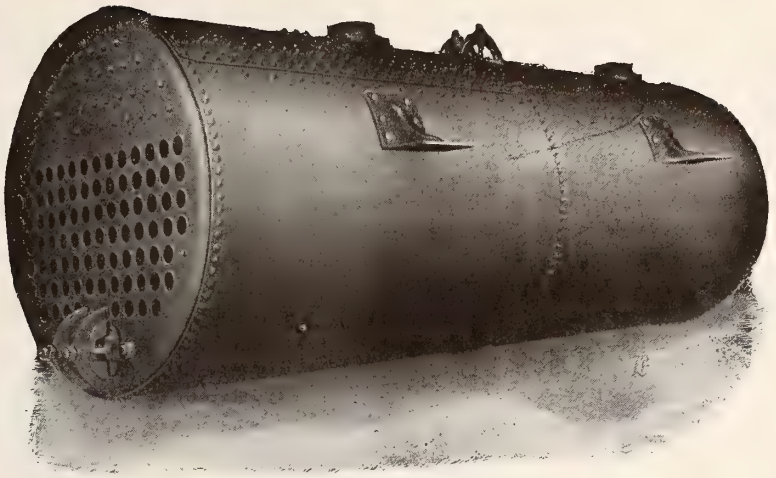
Made in Canada

LOOKS almost too good to be possible, doesn't it? Yet, it's not only possible, but is an everyday commonplace wherever somebody has installed a Jones Underfeed Stoker. That's why manufacturers instal the Jones—the fuel savings it effects and the improvement in combustion of the fuel burned. At your request we will mail you addresses of the nearest plants convenient to your own location where you can see a Jones in operation.

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Changing employees and breaking in new men is unprofitable.

The only man I know of who profits by impure air is the undertaker.

Eliminating Danger of Explosions.

Every pound of dust saved is a source of revenue. Eliminating certain classes of dust eliminates danger of explosions—which cause loss of life and property.

In speaking of dust explosions I call your attention to report of the Millers' Mutual Casualty Insurance Co. pertaining to the industry of flour mills and grain elevators:

Sixty-seven deaths and 1,380 injuries were reported from March 1, 1912, to March 1, 1914, caused by accidents in flour mills and grain elevators. Ninety-two per cent. resulted from carelessness. Precaution would have saved life and limb. Annual average property loss from fire and explosion amounts to $500 per hour x 24 =$12,000 per day, or $3,600,000 per year. Injury and loss of life of employees from explosions, alone, in two years were 117.

Breathing dusts continually leads to consumption and lung troubles. The exhaust system provided for dust-creating machinery, and ventilation should be used and maintained in operating condition.

Impure air lowers your vitality. Properly regulate and maintain all means used for ventilation and keep toilets in sanitary condition.

Eighty Men Killed by Dust Explosions.

We notice greater activity in the United States Department of Agriculture. The study of dust explosions was begun largely as the result of an explosion in a feed-grinding plant at Buffalo, N.Y., in 1913. In this accident 33 men were killed, and more than 70 injured. Such explosions are, unfortunately, too common, but it is probably that when no loss of life occurs nothing is heard of a great number of minor occurrences. In the past year scientists have carefully investigated and studied sixteen which have taken place since 1905, with the following result:

At least 80 men were killed in these explosions and 122 injured. The total property loss exceeded $2,000,000. Such figures as these are quite sufficient to demonstrate that coal dust is not the only dangerous form of carbonaceous dust, as some people think. The object of the scientific study now in progress is to discover some way of preventing the frequent accidents in grain mills, elevators and industrial plants throughout the country.

Labor Commissioners' Recommendations.

I will quote part of Report of the 27th Annual Convention of International Association of Labor Commissioners. Their recommendations pertaining to Dust Removal are as follows:

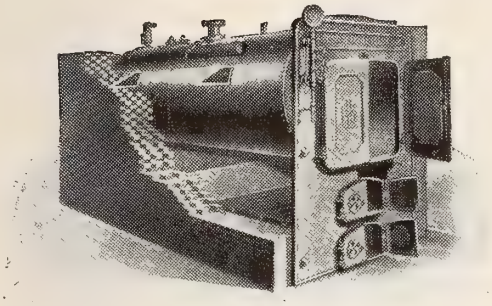
Means should be taken to keep the factory as free of dust and fumes as possible. Constant breathing of air laden with iron, brass and many other dusts often leads to tuberculosis in a very short time. Experience has shown that mechanical means are absolutely necessary to insure proper removal of dust. Wherever dust or fumes are formed locally, as, for instance, by tumbling barrels, grinding and polishing wheels, circular saws, furnaces, etc., the exhaust should be direct from hoods which enclose the objectionable source as completely as possible. The design of an exhausting system is a matter that should be entrusted to an *expert* in that line and not to local tinsmith or superintendent, if efficient and economical results are to be obtained.

Lead poisoning is appallingly frequent. During the year 1914 1,769 cases of lead poisoning were discovered in 19 lead smelting and refining plants employing a total of 7,400 men, about 23 per cent., many cases proving fatal.

Under the occupational diseases law passed in 1911, the law holds employers responsible if they do not take due pre-

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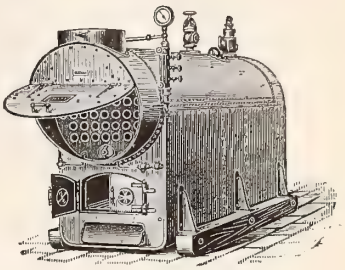
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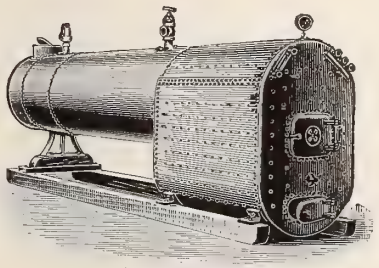


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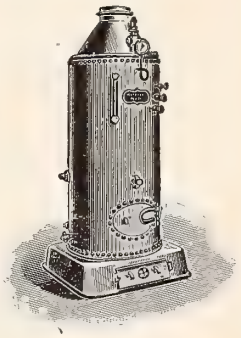
of all types and sizes



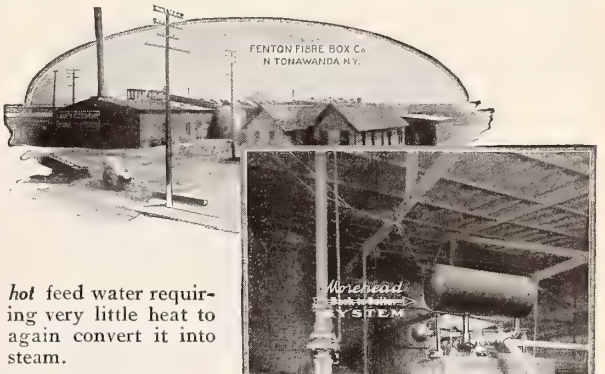


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"We were able to cut out one of our boilers—saving fuel and getting better results"



THIS STATEMENT from the Fenton Fibre Box Co., of N. Tonawanda, N.Y., is simply a repetition of similar claims received from several thousand other users of the simple and comparatively inexpensive

Morehead
Back to Boiler
SYSTEM

of steam line drainage and boiler feeding.

In this plant the returns from the steam heated corrigators, hot plates, etc., were formerly collected in a hot well and pumped back to the boiler by the notoriously wasteful steam pump method.

With the Morehead System installed all water of condensation is returned to the boilers direct and under pressure as pure *hot* feed water requiring very little heat to again convert it into steam.

Result: Hotter machines, faster and better work, operation of one boiler done away with, fuel saved and everybody pleased.

So thoroughly satisfied was this progressive concern with the Morehead System that they immediately installed a duplicate System in the Buffalo Box Factory which they own and control.

You can likewise convert your radiation losses into their equivalent of dollars. Tell us what you are doing and we will tell you—without obligation—what we can do for you.

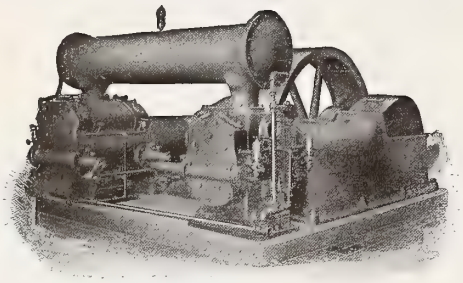
Get the advice of our engineering department with our 25 years' experience in solving steam drainage and boiler feeding problems.

Canadian Morehead Manufacturing Company

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Industrial locomotives face different conditions. They must work day after day in the hardest service, and often in localities where repairs cannot be made without great inconvenience. That is why we build our industrial locomotives from interchangeable stock parts. With this system every part must fit every other locomotive of the same size and design, and long delays waiting for duplicate parts is avoided. Interchangeable parts kept on hand at our Works for prompt shipment.

MONTREAL LOCOMOTIVE WORKS, LTD.

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cautions to protect their workmen from diseases to which the work makes them liable.

Dust explosions are most common in the manufacture of coal, soot, wood-dust, cork, tanning bark, grain malt flour, starch, sugar, wool, organic fabrics of various kinds, oakum, metallic dyes, bronze, resins, celluloid, sulphur and naphthalene.

Dusts which propagate the flame readily, and ignite so easily that an explosion would almost certainly be produced by lighting a match in the dust-laden space, includes sugar, dextrin, starch, cocoa, rice refuse, meal and sugar refuse, cork, fine wood-dust, malt, oat husks, grain in flouring mills, maize, grain in storage, corn flour, and flour in flouring mills.

Importance of Ventilation.

To avoid dust explosions, the most proper and natural thing to do is to eliminate the dust, especially where it falls into the particularly explosive class. Thorough ventilation is of course important and naked flame should be avoided in plants where the production of dust cannot be prevented. Machines that may become overheated should be watched, and the air around belts that may generate static electricity by friction should be moistened by spraying, or grounded wire. To mention further safeguards:

Processes in which dangerous dust is produced, and which cannot be effectively safeguarded by methods similar to those here indicated, should be conducted in separate buildings placed at same distance from the rest of the plant, and preferably only one story in height. The machines in a building of this kind should be so arranged that they can be stopped and started from the outside.

The building should also be fitted with self-closing and self-locking doors, which cannot be opened from the outside without a key. This lessens the probability of workmen entering it while the machinery is in motion.

TEMPERATURE OF SLEEPING CARS.

The Canadian Northern Railway has been experimenting for a considerable time to secure uniformity of heating throughout the different periods of the day in its sleeping cars. One car has been fitted with a thermostat device, and this, it has been proved, can be operated with complete satisfaction. Uniform temperature is maintained throughout the day, and a uniform, though lower, temperature during the hours of slumber.

TUNGSTEN IN N.B.

Development of a Mine on the Miramichi River is Progressing Favorably.

A very interesting development of wolframite or tungsten is in progress at Burnt Hill, on the South West Miramichi. This metal is extensively employed in the manufacture of high speed steel and armor plate. As the Imperial Government has commandeered for its own use all of the metal of this kind in the empire, the successful development of this provincial prospect possesses more than local interest. The company has erected a concentrating mill at the water's edge of the Miramichi River, for the treatment of the ore as it is taken from the fine. A shaft 65 feet deep has been opened up to follow the vein in two directions. The mine is equipped with steam hoisting apparatus, and air compressor for the drills. The vein of ore is about four feet in thickness and is nearly vertical.



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and
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every description

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ROPE FITTINGS

Manufactured by

THE B. GREENING WIRE CO., LIMITED
HAMILTON, ONT. MONTREAL, QUE.

Making Sure of Good Workers To-Morrow*

By HERBERT E. MILES

President of the Wisconsin State Board of Industrial Education, Chairman of the Committee on Industrial Education for the National Association of Manufacturers

THE manufacturers of this country have in the past put a relatively small amount of high-grade workmanship into their manufactured products. The reason is that we lack the men and women capable of putting in the fine work. And we lack them because we do not train our boys and girls. The boy or girl who leaves America's schools to go to work in factory, warehouse, or office, is running up a blind alley; ahead lies the blank wall of a life spent at untrained labor, unproductive alike to employer and employee.

The benefits of skilled labor to the employer are obvious; the manufacturer who can obtain sufficient workers of this kind is fortunate indeed. The advantages that result to the workman are numerous. Continuation vocational schools are proving to be very effective in supplying the trained workers that every employer needs.

The German System.

Germany arrived at this conclusion years ago, and its trade schools are in consequence perhaps the best in the world. There a boy is not permitted to go to work haphazard; the state takes a hand in his selection of a job. He must apprentice himself to a journeymen of three years' standing who possesses a master's certificate. This man is obliged by law to move the youngster from department to department of the work, and he must turn the lad into a competent journeyman in three years.

At that time the boy takes a public examination in his trade. If he fails, the master is given another year to train him sufficiently; if he then is unable to "pass," his employer is liable to punishment. This usually comes in the form of losing his right to take further apprentices.

Thus a boy, a full-fledged worker at seventeen or eighteen, is able to take his place in that class most productive to itself and to its employers. In this country our way of teaching a trade—or rather our lack of method in teaching one—generally leaves a man in the ranks of unskilled labor until he is twenty-six or twenty-eight, and he does not then, or perhaps ever, reach the degree of usefulness that he could have attained if he had been placed under more favorable circumstances.

Now at fourteen, boys, whether American or German, begin to assert themselves. This is not accidental at all. At fourteen comes adolescence. Then a boy develops a will of his own; his creative power comes into being; his whole existence changes; and it is then that he often wants to leave school and to go to work making things.

Boys May Lose Heart.

The lack of effective methods of training may put an end to this ambition; when a boy is shoved into a dead-end job he soon loses heart, and thus curtails his value to himself and to his employer. To correct this condition, and to increase the opportunities for the boys and girls thrown into the business or industrial world before they are prepared, continuation schools are being established in many concerns.

The Benjamin N. Moore & Sons Company, leather manufacturers, of Boston, for instance, has inaugurated a course that only high school graduates may enter. As the president of this firm says:

"The tendency has been to place a young man in a position and then practically to forget him. In such cases he rarely advances further." This concern arranged a training course to give the boys entering their employ an all-round knowledge of the business. These students also attend the lectures and meetings of the superintendents' and foremen's association, and thus gain a broader view of their work.

Some have proved to have exceptional ability; one is now assistant superintendent of one of their factories. Of course, when the firm gets such an unusual man, it changes the course to his needs, so that he may receive the fullest training possible.

Results in the industrial schools are not based merely on theory. Wisconsin passed a law providing for them in 1911; and in a large number of concerns they have proved a real success. In Connecticut, under a somewhat different plan, they have been in operation since 1913. Pennsylvania has them, and Boston. Almost everywhere that they have had a trial they have been successful. Tangible results have been traced in the cases of most of the children who have attended —results of the kind employers are everywhere eagerly trying to obtain.

Children go to School.

In Wisconsin no employer may hire children under fourteen years of age, and those between fourteen and seventeen must go to school during their regular working time at least four hours a week; the employer must permit them to go. The employer generally pays the child for his school time at the regular wage, although the law does not require it. Any trade or occupation where there is a sufficient demand to warrant special training, may be taught; and the schools may be located right in the factories, stores, and offices if the owners wish. Otherwise the central school supplies the instruction in its own rooms.

This has been done in a considerable number of Wisconsin establishments; the results have been excellent. The best proof of results is the gradual growth in the number of such schools, under the supervision of the state board. The cost to the employer is comparatively small; he can supply, through his foremen, the best technical instruction. The public authorities furnish the accompanying work in citizenship and similar subjects. The few square feet of floor removed from production, the small amount of heat and light required, the little time taken by the foremen and the superintendent to help these are, as a rule, all repaid the manufacturer many times by his immediate gain in available skilled labor.

Workers over seventeen do not come under the compulsory provisions of this Act, but the continuation schools are open to them. A growing tendency is manifesting itself among employers to send these workers to the day schools. About 25,000 attend these schools in the evenings, when the instruction is of a higher grade. For them also the university extension division supplies further instruction along the same lines. In many of the manufacturing plants in the

* Abstract of a recent article in *Systems*, Chicago.

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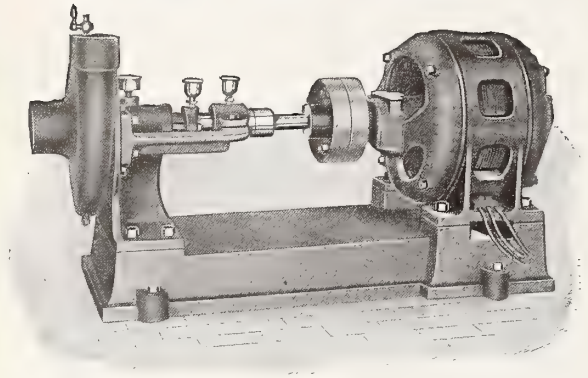
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state, classes for the workers are carried on under the supervision of the university authorities.

The Cutler-Hammer Manufacturing Company started classes in its Milwaukee plant several years ago, with instruction bearing directly on the work of the company. The firm pays twenty selected men for their time in class; the university provides instruction in practical shop mathematics and shop drawing.

Advanced Classes Held.

A class that has completed the elementary course in mathematics and drawing is allowed a half-day each week the next year to attend an advanced class on the same basis. The subjects taken up are mechanics, electricity and magnetism, direct and alternating currents. The plan is so designed that the student takes up electrical engineering work in direct line with the company's activities. In addition, another class of selected students starts in elementary subjects. A new elementary class has been started each year, and the advanced class allowed the same amount of time.

The work here has been very successful. Seventy per cent. of those who have entered a course have finished. Since the inauguration of these classes the grade of work done by the students of the Cutler-Hammer classes averages ninety per cent., on a basis of one hundred per cent. for perfection. A number of students, most of whom have not gone beyond the eighth grade in the public schools, have materially advanced themselves as a result of taking up this educational plan. Several have become assistant foremen in their departments. A great number have advanced from a lower department to a department that demands more skilled work. In a few cases the students have been promoted to district offices of the company as mechanical experts.

The experience of this company is typical. I believe that a large percentage of the places of employment in America will, within a few years, be operating similar places of education for those who work in them. This will occur because it will pay everyone, and because it will be known by everyone to pay.

The classes, too, are by no means confined to large concerns like Cutler-Hammer. An employee of a small shop in the state recently said: "Five years ago I worked for this firm as a bench hand in the shop. A year later I entered the university classes in drawing and mathematics. Since then I have advanced a step a year; now I am assistant to the chief engineer at a salary four times my starting wage."

Another Company's System.

The Winchester Repeating Arms Company hires a considerable number of boys who have had some vocational education. The average rate paid them to start is twenty-six cents an hour; the highest wage for them as beginners is twenty-eight and two-thirds cents, while some get no more than twenty-three cents.

"Their work in most cases," says an official of the company, "is greatly superior to that rendered by boys who have not had the advantage of vocational training. Where the boys are industrious they have usually learned the fundamental features of the work and consequently have taken up the practical application quickly.

"Many boys from these schools avail themselves of our apprentice school, with its supplementary course in trigonometry and mechanical drafting. Thus after two or three years here they are able to qualify as first-class mechanics and are far ahead of the boy who has been in the plant a similar length of time but who has not had the outside work.

"In brief, our experience has been that the vocational training in public schools is of considerable preparatory

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value. The boys are taught the worth of scientific knowledge and lend themselves more readily to instruction throughout the plant. Each company has work peculiar to itself, and if the boy is taught fundamentals he can easily adapt himself to any conditions that he may find."

In selling, too, the extension classes do good work, making the sales force more valuable to employer and employee alike. The proprietor of a department store in a small Wisconsin town recently said: "It makes a great difference in our daily sales since our employees follow the instructions they receive in their salesmanship classes. In fact, I get a lot of good from them myself. I have sold as much as seven barrels of apples in one day by following methods they outlined. And one of my saleswomen, using a method of suggestion that had been emphasized in one of our meetings, disposed of six woolen blankets in a day. Our total sales have increased materially."

Nearly every business that employs untrained workers can benefit by establishing a school for them. Any organization is able to supply from its ranks experienced workers who can give part of their time to instruction if the size of the concern does not warrant a whole-time teacher. Even though it is large enough to take up the time of one man or more it has frequently been found advisable to use, instead, several foremen or mechanics because of the value of their practical knowledge and the effect that it has on the attitude of the students towards the work.

In many places the business forces are behind the schools. At South Bethlehem, the Bethlehem Steel Company, working with the local authorities, has started work on a part-time school that is to be opened next fall.

There is no doubt that the importance of adequate training is being daily recognized by more and more concerns. When it is even more completely recognized, the result will be to give to the workers who are forced into the business world without adequate preparation a chance to live better and more useful lives, for themselves, and for their employers.

THE WELCOME MAN.

There's a man in the world who is never turned down, wherever he chances to stray; he gets the glad-hand in the populous town, or out where the farmers make hay; he's greeted with pleasure on deserts of sands, and deep in the aisles of the woods; wherever he goes there's the welcoming hand—he's

The Man Who Delivers the Goods.

The failures of life sit around and complain; the gods haven't treated them white; they've lost their umbrellas whenever there's rain, and they haven't their lanterns at night; men tire of the failures who fill with their sighs the air of their own neighborhoods; there's a man who is greeted with love-lighted eyes—he's

The Man Who Delivers the Goods.

One fellow is lazy and watches the clock, and waits for the whistle to blow; and one has a hammer, with which he will knock, and one tells a story of woe; and one, if requested to travel a mile, will measure the perches and roods; but one does his stunt with a whistle or smile—he's

The Man Who Delivers the Goods.

One man is afraid that he'll labor too hard—the world isn't yearning for such; and one man is ever alert, on his guard, lest he put in a minute too much; and one has a grouch or a temper that's bad, and one is a creature of moods; so it's hey for the joyous and rollicking lad—for

The One Who Delivers the Goods!—*Walt Mason.*

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TOY MAKING IN WAR-TIME

Great Impetus Given the Industry in Canada and United States Since the War Started

By J. A. STEWART

(Reprinted from the "Manufacturers' News")

Toy-making is a popular pursuit. There is always plenty of money to buy toys, it seems. There is no closed season on the manufacture of playthings. And war-time, instead of lessening, has served as a stimulus to the making of toys in the United States and some other lands.

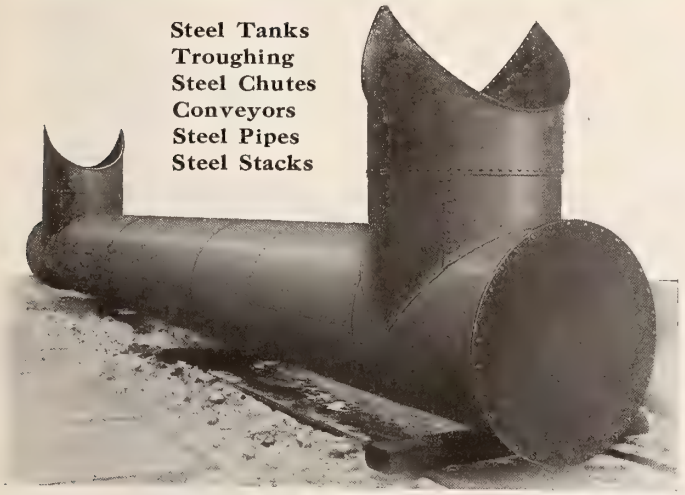
What this country has done in the way of toy-making expansion is best shown by official figures. Last year, the exports of toys from the United States reached a total of $2,030,089, two-thirds of which went to England and Canada; and considerable quantities to Australia, New Zealand, Cuba and to South American countries. This is more than double the amount of toys exported in 1915 and nearly four times that of 1912.

In the three score years since the census of 1859, the number of toy establishments in the United States has increased from twelve to over 300; and the value of toys made in this country from $300,000 to nearly $14,000,000. The average number of toy-makers has risen from about 200 to 8,000 and their annual earnings from $45,000 to $3,500,000. Instead of one-half our country now produces nearly twice as many toys as it purchases abroad, every year.

Toy-making in Canada, as well as in the United States, has received a great impetus since the European war began. Formerly a few manufacturers were making dolls' carriages, children's wagons and sleds; and a few factories utilized their waste bits of material in toy-making. The problem of unemployment due to the war conditions started toy-making on an extensive scale, first by social workers, then by Trades' Industrial Toy Associations, the Canadian Toy Association being formed to hold toy fairs in leading cities and towns on the order of the famous Leipzig (Germany) Toy Fair. At the third Toy Fair in Toronto, Canada (February 5-17, 1917) there was not only an extensive display of Canadian toys, but also special arrangements were made for all the great wholesale houses and department stores in Canada, from the Atlantic to the Pacific, to send their representatives to the fair and make their purchases for the Christmas trade of 1917.

In Winnipeg and many other places in Canada, toy manufacture has been established as an industry to be carried on by the returned and invalided soldiers. In some sections, companies formerly producing electrical and other supplies (for whose goods the demand ceased when the war began) have successfully manufactured toy bugles and trumpets.

During the year preceding the war, Canada imported over one million dollars' worth of toys, more than half of which was from Germany, and nearly $300,000 worth from the United States. The imports from the United States totalled nearly $600,000 last year, while Canada's own production was greatly increased. Among the toy specialties which Canadian factories are now putting out are dolls, carriages, cards, blocks, sailboats, steamships, games, puzzles, rocking horses, sleds, wheelbarrows, cannon, guns, mortars, celluloid toys and construction toys of steel and wood, made in over a score of widely separated centres.



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Steel Stacks

Steel Plate Work

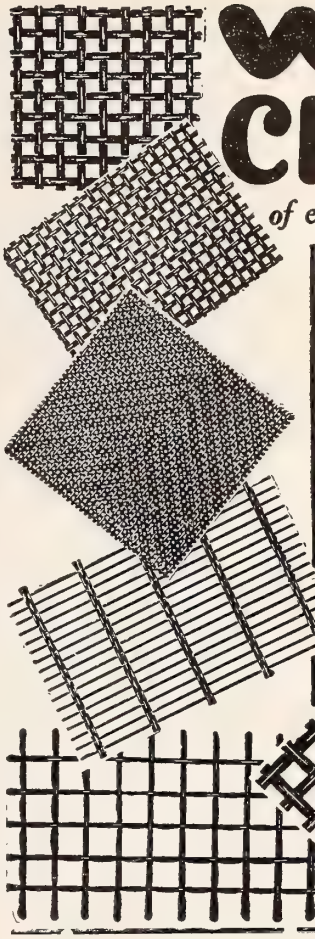
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Rebuilding Burned Machines

Writer in *Wood Turning* Contends that it is Bad Policy to Buy Rebuilt Machinery that has Been Through a Fire

By JAMES F. HOBART, M.E.

A MAN asked the writer recently, if it would pay to have some burned machinery "rebuilt." The man in question had recently started a new shop, and indicated a decided penchant towards the purchase of "used" machinery, having already set up two or three second-hand tools and machines and at the time of the query above noted, was considering the purchase of all the machines from a shop which had recently been burned to the ground.

The writer, honestly desiring to aid the wood turner in the selection of machinery, answered to the effect that he, the writer, personally would never purchase for his own use any machinery which had been through a fire, no matter how well the machines might have been rebuilt, how well it appeared, or however smooth-running it appeared when tested out.

Nobody Knows What Happens.

There is a very good reason for this. When a machine passes through a fire nobody knows what happens. The machine may seemingly barely have the paint burned off, and a little babbitting and polishing seemingly puts the machine in as good condition as when new.

But, for all of this, there is a very strong possibility that the fire was far hotter than it appeared to be and that some portion of the machine frame had been twisted enough to throw the machinery out of alignment far enough to destroy its accuracy. The writer has seen many instances of this kind, and it is one of the things which cannot be guarded against, no matter how careful may be the man who does the overhauling and repairing.

Prepare to Take Risk.

Therefore, it is not safe to purchase burned machines unless you are prepared to risk the cost of the machine and to throw it out should it prove to have been burned enough to destroy its accuracy. To be sure, there *are* some rebuilt burned machines which are actually as good as new for the reason that they have *not* been burned—heated hot enough—to throw the frame or bed out of alignment. When such a machine is rebuilt, it truly is exactly "as good as new"; but when you thus re-vamp a burned machine, you are taking even chances that it has been irreparably damaged by overheating, to a point which prevents its ever being serviceably rebuilt except through the foundry.

Therefore, if you have to do with burned machines, either as they came from the fire or from the hands of a rebuilder, then by all means work off said machines upon your competitor. If you can get him to fill his shop with used, rebuilt, perhaps inferior machines, while you have in your shop the

STEEL CASTINGS

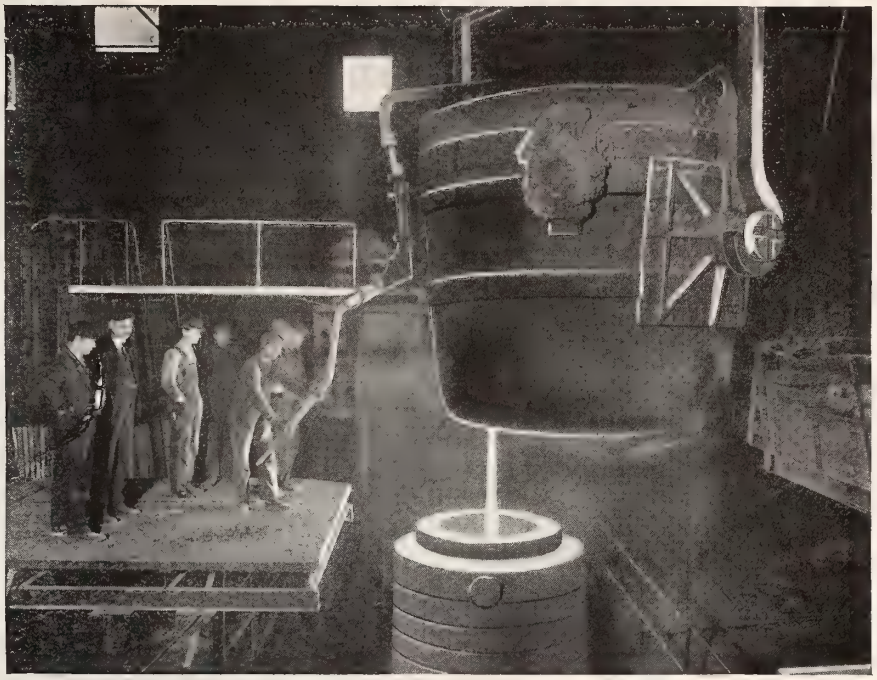
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best *new* machines which money can buy, then you have done a mighty good stroke of business in thus handicapping your rival with inferior machines while you are using the best, the latest, the most improved and productive machines and tools which invention has placed within your reach.

Bear the above well in mind, ye wood turners, and whenever you are tempted by some one who wishes to unload—cheap for cash—some burned machinery upon you, then steer that man right to your competitor, to the rival who is pushing you the hardest, while you hie yourself to the machinery designer and manufacturer and search his shop and stock room for some machine which will turn out more and better work than it is possible for your competitor to turn out with the machines which you have steered him up against, and which machines may show up at any moment that hidden defect which was acquired in the fire from which the rebuilt, burned machines were obtained!

The Case of Used Machines.

To a considerable extent, the remark about burned machines will apply to used machines also, but in a far lesser degree. In a used machine, there is a possibility that the machine may have been rebuilt to be fully as good as new. In fact, some machines are greatly improved by rebuilding, because during that process one or more faults which may have developed may have been corrected by the manufacturer when the machine was overhauled.

Furthermore, by taking out old parts and inserting new ones, the "used" machine may have been completely and entirely rebuilt "from the ground up" and may be far superior to the new machine. This certainly will be the case when all the old parts have been thrown away and new ones put in their stead. But it is very few machines which get overhauled and rebuilt in that manner.

Usually, the shafts are cleaned, polished if necessary and the bearings re-babbitted, and that is about all that is really done in "rebuilding" a used machine. And when the above is the limit, well, then is when the machine should always be worked off to your competitors, while you purchase and make use of the latest and most improved machines you can obtain.

Again, in selecting machines for fitting up a new shop, the owner, all too often, picks up a machine here, another of a different make there, and when he starts up the shop is filled with a heterogeneous collection of machines which have been gathered from the manufacturers in the four corners of the earth, so that when repairs are needed he must send all over the country for parts or supplies.

See to it, therefore, that the machines in your shop are, as far as possible, all of the same make, and that they are brand new and of the latest pattern, embodying all the modern aids to rapid and thorough manufacturing, so you will be sure of turning out the best of work, at a low cost, which the "other fellow," with his more or less antiquated machines, can never hope to equal or even approach!

Condition of the Machinery.

There is another point regarding turning machinery which has a most vital effect upon the output of any shop, and that is, the condition of the machinery in use. In some shops, there are to be found lathes and other machines of so antique appearance that it seems as though they must have taken refuge with Noah in the ark!

Why do you keep such tools and machines in your shop? Why do you not replace them with machines which will turn out twice the work that the antique machines set forth? There can be no question but what you are operating such machines at a continual and a considerable loss. Why not get into the habit of disposing of any machine as soon as it comes to need continual repairs and renewals? You can

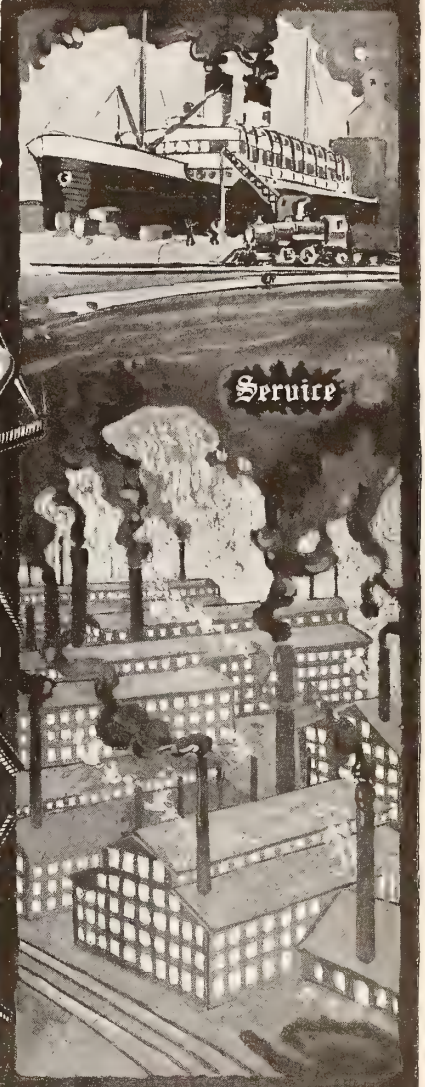
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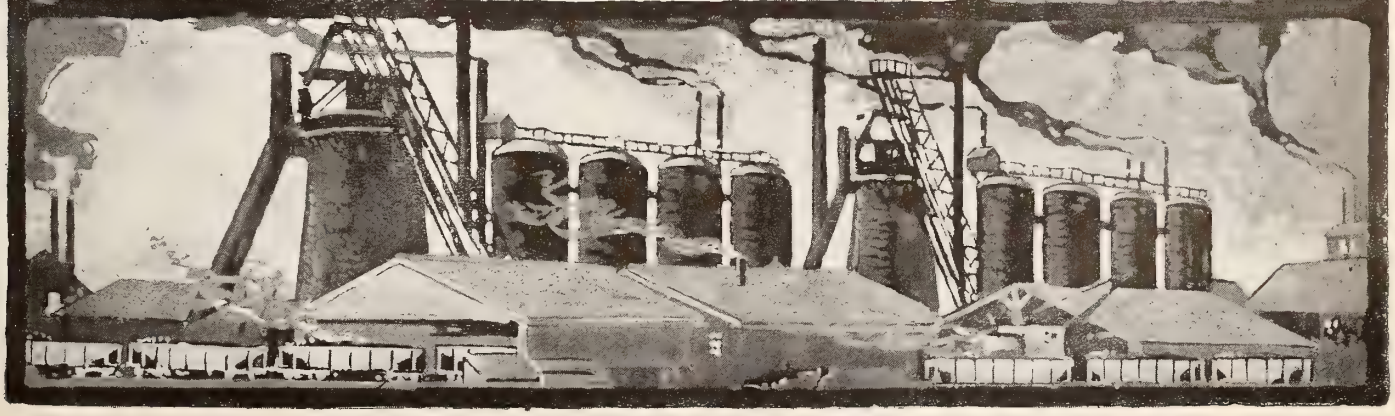
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Specify them when ordering.

They are:



"trade-in" a machine for more than half its cost as soon as it begins to call for repairs, and by so doing you *always* have the best of machines in your shop, there is not a cent being spent for repairs, and you have at all times the latest, most improved, and the most efficient machines to be found. Therefore, why should you continue to use a machine after its days of first usefulness have passed?

Why should you wear out a machine and then: "wear it in again?" Such practice never pays. It may look to you to be a considerable expense to throw out seemingly good machines and put in new ones every few years, but it is *not* nearly as expensive as it is to continue using a machine which requires continual repairing and tinkering, and which at its best is far behind in efficiency of the machine of to-day.

Get busy, then, and do as the office man does with his typewriters, viz.: Just as soon as a machine needs repairs a second time, that machine is bundled up and sent to the dealer with advice to send a new machine at once in its place, and to repair returned machine and to dispose thereof in any manner he may see fit to use. Then you will be "high-line" among the wood turners and need never be afraid that some competitor is going to run you out of business because he has better equipment than you can show, and is therefore in a position to fix prices and control output.

He might be able to thus "blanket" you, had you filled your shop with used or second-hand machines, but situated as you are, with the best of new machinery, he cannot touch you in either quality or price of your output.

SPRINKLER SYSTEM "FREEZE-UPS."

Unless Extreme Vigilance is Exercised, Very Best Installation May Suffer Temporary Disablement.

The many disastrous fires which occurred last winter as the result of automatic sprinkler systems crippled by frost should be avoided this year by increased vigilance on the part of everybody having responsibility for such systems.

The National Fire Protection Association is forehanded with a special bulletin, "Precautions Against Freezing of Fire Apparatus," of which it will send a copy on application, without charge, to any member of the Canadian Manufacturers Association. Address, National Fire Protection Association, 87 Milk Street, Boston, Mass.

INSURING ITS LABOR SUPPLY.

Large American Industry Establishes a Practical Course for Instruction of Its Young Employees.

Due to conditions with which industrial managers are only too familiar, there is a great demand for trained foundrymen in responsible positions. Hence at this time opportunities are numerous and attractive for men whose practical knowledge has been consolidated and made readily available by specific training. To insure itself a supply of such men the Westinghouse Electric and Manufacturing Company, E. Pittsburgh, Pa., recently established a course in foundry work for those of its employees between the ages of seventeen and twenty-one years who have completed at least the eighth grade of public school or its equivalent. The shop courses will include the following: Bench and floor molding, machine molding, core making, tempering of sand, cupola operation, mixing of alloys, cost calculating. Classroom instructions will be given during the course on blue print reading, mechanical drawing, shop problems and metallurgy, particular attention being given to the alloys of iron and copper. The idea of the company is to give those desiring it a thorough all-round knowledge of this very important phase of its work.

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STEEL Bridges Buildings

Natural Lighting and Factory Efficiency

A Poorly-Lighted Plant Leads to Accidents and Inefficient Work—A Well-Lighted Shop Demonstrates Safety First and True Efficiency

By R. W. JOHNSON

(Reprinted from Manufacturers' News)

IT is a well-established physiological and psychological fact that gloomy surroundings have a depressing mental effect and reduce the physical efficiency of human beings. The natural consequence is reduced productive efficiency, and, therefore, loss to the employer. This reduced efficiency is quite aside from the losses arising directly from the same lack of sufficient light, through imperfect workmanship and wasted material, and the reduced *morale* of a working force so situated.

It is then highly important that the most careful attention be given to the lighting of a factory or shop. The cheapest, and by far the best light is natural sunlight, tempered or diffused uniformly throughout the plant. There should be a sky exposure sufficient to insure ample light for all interiors, and a relatively large window area, such as to permit the proper utilization of the light.

The windows should reach from ceiling to within three or four feet of the floor, the distance naturally depending upon working conditions. In warehouses or other store-rooms consideration of course must be given to the stacking of material against the walls.

Style and Form of Sash.

Not only is the size of the window openings to be considered, but also the style and form of the sash. If the customary types are used, whether of wood or of pressed steel, it is necessary to make the openings considerably larger than if wrought steel sash are employed. The latter permit an influx of something like 20 per cent. more light, and in several other respects also are very desirable. Their proved fire resistance qualities, for one thing, and the simplicity with which ventilation may be secured, especially commend this form of sash. There is no sticking, as in the case of wooden siding sash or even of pressed metal or metal-covered sash when reasonably close.

Pivoted sash, whether the swing be horizontal or vertical, are preferable to the sliding. They are mechanically simpler and therefore less expensive, and have the advantage of being easily operated, either individually or collectively by mechanical devices installed for the purpose. A whole length of a room may have all or a given part of its pivoted sash swung by the turn of a wheel.

Glazing and Care of Windows.

The glazing and care of windows do not usually receive the attention they deserve. No matter how much window space there may be, unless some method is employed for diffusing the light in rooms of any considerable depth, the illumination will be uneven. The spaces farthest from the window openings will be in comparative obscurity, while near the windows the light may be quite blinding. Where shops are wide enough to avoid the ill effects of the cross lighting, and in all cases where care is taken to prevent it, both side walls should by all means be provided with windows. In any case, provision should be made for an even diffusion of the light. Where direct undiffused light enters from more than one direction, the cavernous depths of the shops are penetrated by interfering walls of light. The effects of such cross lighting is disagreeable.

The prejudice against cross lighting, that is, the interference of light entering a room from different directions, is justified only where diffusion does not take place. Intense lights from different directions make it more difficult to avoid their blinding effects upon the eye, and they introduce distorted shadows, unnatural effects, and unnecessary eye fatigue. With the light diffused, the effect is like that of a daylight when the sun is behind thin clouds.

Kinds of Glass to be Used.

There is much difference in the diffusing effect of the various forms of glass intended for this purpose. Any glass with a roughened surface will give some diffusion, which is nothing but the dispersion of light rays in all or in determined directions instead of permitting them to pass directly on as they would when coming through smooth and transparent glass.

But only a glass, one of whose surfaces is virtually a series of parallel prisms so arranged as to direct a large proportion of the rays in planes nearly parallel with the floor and ceiling, can equalize the illumination of parts near to and those remote from the source of illumination. Ground glass intercepts so much light that it is undesirable. Ribbed glass set with the ribs horizontal accomplishes the purpose very well, and prism glass does it better. Where the rooms are very wide, the latter is most likely to be satisfactory.

Maze glass, by which is meant any translucent glass with a figured surface, breaks up light rays and disperses them more effectively than any other kind; but as the diffusion is in all directions, the penetration is diminished, and it is not possible to get light from windows so glazed far into deep rooms. Its best use is for windows in comparatively narrow buildings, and to get from windows more or less exposed to the sun, an effect resembling the much desired north-light.

Windows Translucent.

Windows wholly glazed with translucent sheets are not, however, entirely satisfactory. Workmen usually like to be located near windows. Some bosses object to such an arrangement on the ground that much time is lost in looking out, especially by women workers. The well-informed foreman knows that the desire to look out of the window is not only legitimate on the part of the workman, but is a positive help to efficiency. The operator's eyes, if constantly fixed upon nothing but the work before him, or upon nearby objects in the shop, grow wearied and strained. A momentary glance at something distant relieves the strain, relaxes the tension, and permits the eye to work on refreshed, as it were. This is the basis, though not always consciously, for much that employers have done recently in making the external environment of their factories, as well as the internal, more presentable to the eye. The advantage of an open site, as compared with a crowded city location, is apparent in this connection.

The various forms of prismatic, maze, and other translucent glass, prevent this relief to the eyes of workmen; and

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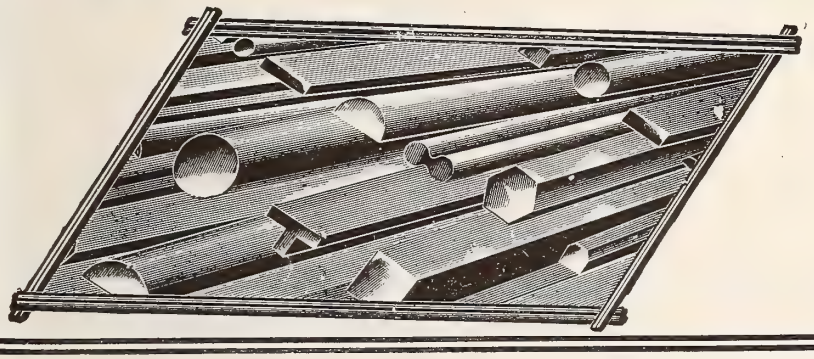
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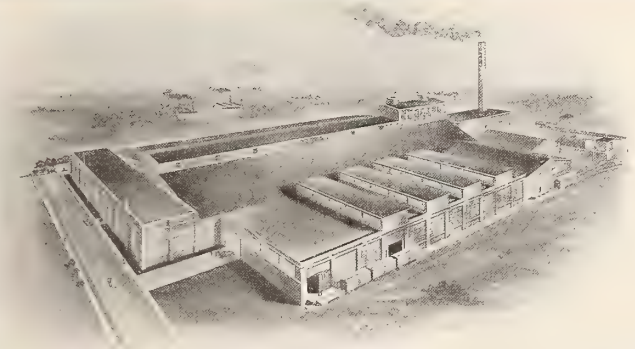
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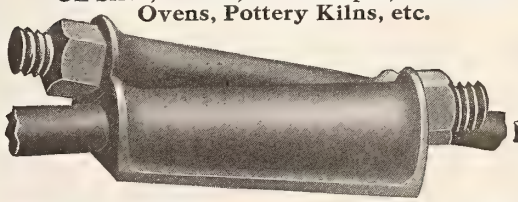
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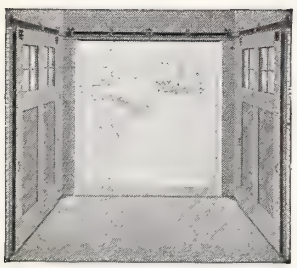
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it is, therefore, advisable, in order to satisfy all the conditions, to use these, or some of them, in connection with plain glass.

Undoubtedly the best lighting obtainable for workrooms is that from a properly designed and constructed saw-tooth roof. It is, of course, peculiarly adapted to the low one-story building, but is at times used for the upper story of multi-story structures.

In order to get the best advantage of good lighting, it is desirable that the interiors of buildings be painted white or, better, a greenish gray. This serves the double purpose of aiding the dispersion of light, and of indicating the relative slovenliness or cleanliness of the place. Machines should likewise be painted in the same manner instead of the customary funeral black.

Natural Light the Best.

Natural light is by all means the best known illuminant. The best artificial light gives but a small fraction of the illumination given by sunlight, whether direct or indirect. I have already pointed out the influence of poor light upon the efficiency of workmen. The skimping of windows in factory construction is the worst thing that could happen to the development of the factory spirit—co-operation and fellowship. Natural light is also cheaper than artificial and it is indeed absurd to pay for an inferior quality of what can be had in unlimited quantities for nothing. I have nothing against artificial lighting, do not understand me. Adequate provision is essential. The dark days of winter and night work all need to be considered in planning light for any industrial establishment.

A passageway over a half-mile long, well-lighted by windows, leads to the top of a hill at Cleveland, Ohio, on which stands the laboratory and office-buildings of the National Lamp Works. Despite the windows and the light that they admit, no prospect, pleasant or otherwise, is observable from them, for the passage is underground and the "daylight" admitted by the windows is manufactured electrically. The outdoor approaches to the top of the bluff are long and circuitous and exposed in winter to weather conditions that make access difficult and uncomfortable. For the convenience and comfort of the employees the difficulty was removed by constructing this passage through the hill, rising by successive ramps and short flights of steps about 35 feet. Says an editorial in *The Electrical World* (New York):

A Problem in Lighting.

"How to light a long underground tunnel of this sort was a serious problem. Of course, ordinary ceiling fixtures might have been used, but the effect is not altogether pleasant, and it was thought worth while to try an experiment with the object of giving the passage conditions of lighting as near daylight as the state of the art would permit. To this end the main passage was provided with narrow lateral air-spaces reaching to the full height of the passage between the outer concrete walls and the inner walls of hollow tile. These air-spaces are good in themselves as lessening the unpleasant likelihood of dampness, and are also made to serve the source of what is perhaps the best approximate of day-lighting effect that has yet been obtained. In the inner walls of the passage were constructed thirty-two windows on each side, glazed with a rather light translucent glass, transmitting light freely but preventing view of the walls outside. Just above each of these windows was installed a 100-watt blue-glass daylight lamp in a show-window lighting reflector, so as to throw a large proportion of the light through the windows. There is in addition a smaller emergency lighting circuit with special pro-

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visions for certainty of service. The actual result is very pleasing. The passage does not convey at all the impression of being an underground tunnel, but might well be merely a covered way connecting two buildings and lighted from the sky itself. It is equally successful from the ordinary standpoint of artificial lighting, and is certainly an admirable example of resourcefulness in meeting a somewhat difficult problem in illuminating engineering as has come to our notice."

The following additional information is from a descriptive article in another part of the magazine:

"The main lighting circuits are arranged for either manual or automatic control as desired. There are door switches at both entrances to the subway arranged so that pushing the door inward turns on the thirty-two daylight lamps whenever the control mechanism is set for automatic operation. The same action sets a time switch in action so that it will turn the lights out in four minutes. A person can walk through the subway in from one and one-half to two minutes. Should another person enter the passage before the end of any four-minute period for which the lamps are lighted, the time switch would be automatically set back to its starting point.

"The automatic system will properly take care of the lighting for all ordinary traffic in the subway. It has been found, however, that, at least during the winter months, the automatic system keeps the lights on continuously through the greater part of the day on account of the frequency with which the subway is used. Therefore, it has been considered advisable to disconnect the automatic mechanism during the busy hours of the day. This can be done by a watchman on his regular rounds, and it saves the wear on the mechanism. The automatic system is most useful in taking care of the lighting after the busy hours are over and during the hours and days of infrequent traffic."

STEEL COMPANY LETS CONTRACT.

Canadian Steel Corporation Will Build Wharves and Slips at Ojibway on Detroit River.

The Great Lakes Dredging Company, Limited, of Canada, Port Arthur, Ont., have been awarded the contract for the construction of wharves, slips and dredging in connection with the steel plant to be erected for the Canadian Steel Corporation, Ojibway, Ont. The company, who have handled some large contracts in Canada, including the terminal works at Port Arthur and Fort William, bid against fifteen contractors. Tenders were placed by equal number of United States and Canadian companies.

The Canadian Steel Corporation have acquired 2,500 acres of land at Ojibway, with a frontage of two miles on the Detroit River. The proposed docks to be built by the Great Lakes Dredging Company, Limited, of Canada, will be on this frontage. The slips to be built are 2,100 feet long by 250 feet. The Canadian Steel Corporation are asking for tenders for 150 houses to be built to accommodate the workmen. The Canadian Steel Corporation's total expenditure for this industry will be about $25,000,000.

MUNITION MACHINERY GUARDED.

An Order-in-Council was passed on October 23rd which prohibits the exportation to the United Kingdom, British possessions and protectorates, and to all foreign countries, of plant, machinery and equipment of all kinds for the manufacture or production of munitions of war, except under license from the Minister of Customs.



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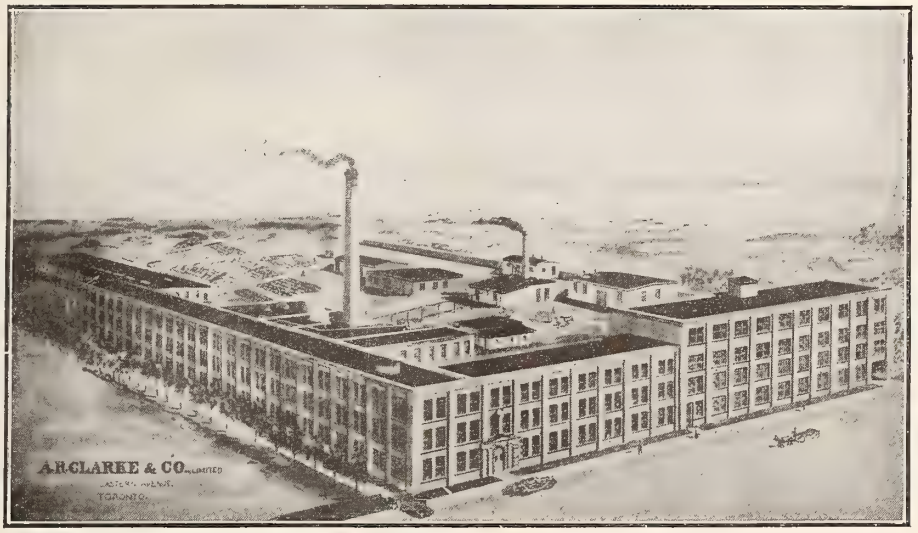
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Rights of Shippers and Receivers

Meaning of Shipping Abbreviations and Solution of Ordinary Causes of Differences of Opinion Regarding Shipments

THE following pointers regarding the use of certain commonly used commercial terms have been prepared by the Traffic Bureau of the New York Merchants' Association:

Meaning of Abbreviations.

C. F. or *C. A. F.* (Cost and Freight), means that the seller furnishes the goods and pays the freight—no other expenses—to place of delivery as agreed. All risks while goods are in transit are for account of the buyer.

C. I. F. (Cost, Insurance and Freight), means that the seller furnishes the goods, pays the freight and insurance to point of delivery—all other risks while goods are in transit are for account of the buyer.

F. O. B. Destination, means that the seller pays all costs and assumes all risks until the goods reach the place of delivery as agreed.

F. O. B. Steamer, means that the seller is to deliver the goods aboard the steamer in proper shipping condition—all subsequent risks and expenses are for account of the buyer.

F. A. S. Steamer, means that the seller is to deliver the goods alongside steamer on lighter, or on the receiving pier of the steamship company, in proper shipping condition—all subsequent risks and expenses are for account of the buyer.

The following from the *Exporter's Review* sets forth clearly and definitely the rights of both parties to a sale made under any of the above terms:

"A buyer should always determine promptly whether he has any preference as to the route over which, or the carrier by which the goods are to reach him. If he has any such preference it is his right to have it respected. This is true if the buyer is to accept delivery at the shipping point. It is equally true if the seller is to pay freight, or even if he has undertaken actually to make delivery at destination.

"There is this material difference between the two cases, however: If the seller is to pay freight the buyer's right to name the carrier must be made part of the contract of sale; if the buyer is to accept delivery at the shipping point, his right to choose the carrier may be exercised at any time before the actual shipment of the goods.

Rights of Buyers and Sellers.

"The reason for the difference is this: A seller who is to pay freight, or be responsible until the goods reach their destination, has a natural right to choose the carrier, unless he has parted with that right by contract; whereas a buyer who is to pay freight and accept the risks attending transit has an equally clear right to select the instrument of transportation. If the buyer has selected the carrier, in any case

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Hypo Sulphite of Soda
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Magnesium Chloride
Phosphate of Soda
Copperas (Crystal and Sugar)
Bi-Chromate of Soda
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in which it is his right to do so, the seller should respect his choice.

"The seller sometimes thinks that he can choose a carrier or a route that the buyer himself will find superior to that of his own selection. If he allows himself to yield to this temptation he is in the position of an agent who has attempted to improve upon his principal's orders: if all goes well the agent has small thanks, and if there is a loss it is the agent who must bear it.

Must Obey Buyer's Orders.

"The seller who disobeys the buyer's orders as to carrier or route not only incurs all the risks of transportation, whether they were originally his or not, but he also places it in the buyer's power to refuse the goods, though they reach him as promptly and in as good condition as could possibly be by any other route. If the market has gone against the buyer, or if he has repented of his bargain for any reason, he may repudiate the contract, alleging no other cause than that he bought goods to come by the A. B. route, while these have come by another line. A seller is never safe in disregarding the buyer's shipping instructions, when the latter has a right to give them, and has given them.

"If the buyer fails to make a timely selection of route and carrier, the seller becomes the buyer's agent to make the selection. Then it is his duty to exercise such care and diligence in the matter as a reasonably prudent man would use if the goods were his own and the risk were his. He is not bound to choose the very cheapest route, or the best, or the most direct; no agent is bound to the highest possible degree of skill. His duty is done if he ships the goods by any line that ever is chosen, or would be chosen by a person of reasonable caution dealing with his own goods of the like kind and value.

Terms of the Contract.

"The terms of the contract are next to be looked after, especially as regards the place of delivery and the cost and risk of transportation. If the contract is silent on these points the buyer accepts his goods wherever they may be at the time of sale. In a great majority of cases, however, the contract contains some provision as to these matters. Most sales of goods to be taken to a distance are now made upon what are known, either as F. O. B. or C. I. F. terms.

"In an F. O. B. sale the seller undertakes to deliver the goods free on board. The place of delivery may be either the shipping point or the destination. It is always better to name the place in the contract. If it is not named, the courts, unless there is some usage or some expression on the contract to lead to a different conclusion, will hold that delivery is to be made at the shipping point; this because the expense of transporting goods is not to be placed upon the seller unless he has agreed to bear it.

Obligation of the Seller.

"Suppose the contract, then, to be for delivery 'F.O.B. (free on board), shipping point.' This places upon the seller the duty of packing the goods properly, placing them on board, addressing them to the buyer, securing such shipping documents as will enable the buyer to take possession of the goods when they reach him, and forwarding these documents to the buyer. So much being attended to, the seller's whole duty is done. He is not concerned with the time at which the goods may reach the buyer, the condition in which they reach him, nor, in fact, with the question whether they ever reach him at all or not. The carrier is the buyer's agent,

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and all questions arising after a proper delivery to the carrier by the seller are to be settled between the carrier and the buyer.

"Two points of dispute have arisen out of contracts of this kind. About one of them there may be some slight doubt, but about the other there is no doubt at all. The contract compels the seller to deliver the goods free on board at the shipping point; but it does not say on board what sort of vehicle they are to be delivered. Suppose the goods have been sold for shipment to South America, and suppose they have come to the New York seller, or are to come, on cars from the West, or on a steamer from Europe. Now, it may occur to the seller, and sometimes it has occurred to him, that the ambiguity of the contract is such as to admit of his making a valid tender of the goods on board that vehicle which has brought them to him, but which will not take them any further. This is the point about which there is no doubt. Such a tender will not do. The proviso 'free on board' is intended for the buyer's benefit, and is of no possible advantage to him to have the goods on board a vehicle capable of moving if it is not going to move in his direction. 'Free on board,' in and of itself, means free on board some vehicle that will take the goods to the buyer.

The Doubtful Point.

"The doubtful point arises in this way: Suppose it is to be admitted, or to be provided by contract, that the goods are to be delivered 'free on board cars at the shipping point.' Suppose the seller has side tracks running into his own yard or works, and suppose there is a switching charge for transferring the cars to the main track. Is this charge to be borne by the seller or the buyer? This seems never to have been decided by any court of final resort. The writer gives it as his opinion, however, that the seller must make a tender upon the main line; that the buyer has a right to rely upon the published schedule of rates from shipping points to destination; that he is not concerned with any arrangement between the carrier and the seller allowing the latter to load his goods elsewhere than upon the main lines of the carrier's system."

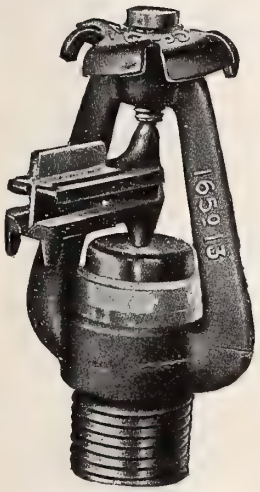
ONE CAUSE OF POWER SHORTAGE.

Chicago Diverting Nearly Twice Authorized Amount of Water from the St. Lawrence System.

Closely allied with the power shortage at Niagara, as well as at all water-powers of the St. Lawrence, is the question of water diversion through the Chicago Sanitary Canal. One feature, which has perhaps not been sufficiently emphasized in connection with this scheme, has been forcibly brought out in recently published figures respecting the power plant, which evidently is a very important feature of the project. The figures show that the disposal of sewage is only a secondary consideration when compared with the financial aspect of the Hydro-Electric power development. This is further accentuated by the fact that the estimated profits from the extensions now under construction would be about 100 per cent. Figures showing the growth of the power plant give the development as 15,278 h.p., with earnings of $130,936 for the year 1908, while, in 1915, these figures had reached 55 640 h.p. and $932,566, respectively. Although the authorized diversion is but 4,167 cubic feet per second, it is notorious that about 8,000 cubic feet per second is actually flowing through the Chicago river.—*Eighth Annual Report, Commission of Conservation.*

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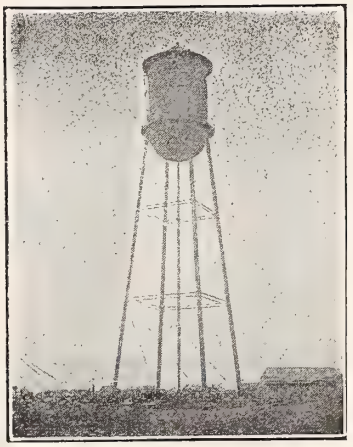
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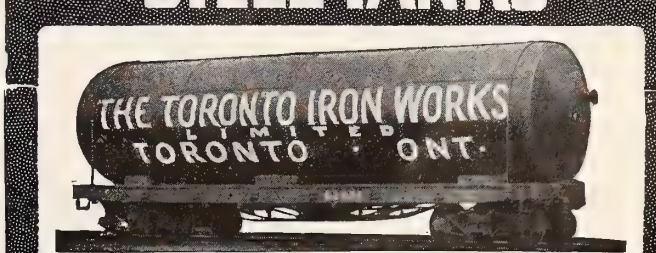
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THE MAN WHO GOT THE "HUNCH."

How a Little Idea Worked Out a Big Saving in a Certain Process of Manufacture.

A factory well known to you uses enormous quantities of small steel pins in its various products. In the first stages of manufacture this part was left with some rough ends which were smoothed up by girls holding a single pin in a pair of pinchers and then holding the ends of the pin against a smoothing wheel. On one occasion several thousand of these pins were needed in a shorter time than they could be turned out in the regular way because the finishing process required so much time.

A man in the factory suggested that the roughed out pins be thrown into the tumbling boxes with some castings that were coming through. The man in charge, instead of brushing the suggestion aside as impractical, tried it out. To the surprise of everybody the pins came out in more perfect condition than when smoothed by hand and the cost of operation as shown by the cost sheets was reduced several hundred per cent. Now the little steel pins are smoothed up in the tumbling boxes with heavier castings at a big saving over the former process.

Interesting, isn't it? And inspiring, when you stop to think that it all resulted from a little constructive thinking —a little headwork.

Then there's this to consider from the point of view of the man who got the "hunch." He did something to make himself a live part of the institution he was serving.

In other words, he did something to make himself remembered.

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WHITE VICTORIA LAWNS

WHITE NAINSOOKS

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DYED COTTONS

OF EVERY DESCRIPTION

THEIR USE INCREASES.

Oil and Natural Gas in New Brunswick are Being More Extensively Developed.

The oil and natural gas development in Westmorland County is making satisfactory progress. During the past year several of the wells were deepened and increased flow obtained. The natural gas is sold under contract to a Moncton corporation, which acts as distributing agent. The total number of domestic consumers of the gas in Moncton and adjoining territory last year was 2,824. The gas is also used by the Canadian Government Railways for their gas engines and forges at the Moncton shops, and by the Plaster Works of the Albert Manufacturing Co., of Hillsboro. The value of the gas produced last year is estimated at $7,936.37. Arrangements have been about completed for the sale of all the company's crude oil to a manufacturing plant at New Glasgow, N.S.

CANADA'S FIRE LOSSES.

Destruction During September Exceeded One Million Dollars, but was Less than in August.

According to estimates compiled by the *Monetary Times*, the fire losses during September throughout Canada amounted to $1,101,700, as compared with $1,238,183 during August, and $981,703 during September last year. This brings the total Canadian fire waste for the first nine months of the year to $13,078,331. The following figures represent the fire losses during the first nine months of each of the three preceding years:

1914	$19,807,693
1915	9,927,297
1916	13,304,614

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BRITISH COLUMBIA FIRE LOSSES.

Commission of Conservation's Survey Shows Need for Looking After Burnt-Over Areas.

Few people realize the enormous damage which has been caused by forest fires in past years. This damage has taken place in every province of the Dominion. An illuminating example is afforded by the investigation of forest resources of British Columbia, upon which the Commission of Conservation has been engaged during the past four years. This investigation shows that on 95,000 square miles the timber has been uselessly destroyed by fire, mostly many years ago. The amount of timber so destroyed is estimated to be not less than 650,000 million feet, or about twenty-two times as much as the total that has ever been cut by the lumbermen in that province. Putting the loss in another way, this timber is equivalent to almost twice the amount of saw timber now standing in the province, and to nearly as much saw timber as is now standing in the forests of all Canada.

Much of the area burned over contains young forest growth which, if protected from further destruction, will, in time, furnish the basis for enormous industrial development on our Pacific coast. If we assume that the 97,000 square miles of cut-over and burned-over lands should be made to produce an average of only 100 board feet per acre per annum, the total increment would amount to 6,200 million feet per year, or about five times the present annual cut. That this estimate is by no means beyond the bounds of reason is shown by measurements of growth which have actually been made. —C. L.

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Buyers' Guide to Canadian Manufactures

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVE MATERIALS
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.
ABRASIVES
*D. A. Brebner, Ltd., Toronto.
ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.
ACETYLENE BURNERS
*The Prest-O-Lite Company.
ACETYLENE GAS
*The Prest-O-Lite Company.
ACETYLENE GAS BURNERS
Economic Acetylene Burner Co., Toronto.
ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.
ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.
AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.
AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Jenckes Machine Co., Sherbrooke, P.Q.
*Smart-Turner Machine Co., Ltd., Hamilton. Ont.
AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.
ALE
E. L. Drewry, Winnipeg, Man.
ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.
ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton. Ont.
AMMONIA
Canadian Ammonia Co., Ltd., Toronto.
ANGLE BARS
*The Steel Company of Canada, Limited. Hamilton, Ont.
ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.
ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.
AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.
AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.
AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton. Ont.
AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville. Ont.
AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.
AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.
BAGS
*Scythes & Co., Ltd., Toronto.
BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.
BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.
BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.
BAND RESAWS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.
BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton. Ont.
BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
BARS, iron
London Rolling Mill Co., Limited, London. Ont.
BARS, steel
London Rolling Mill Co., Limited, London. Ont.
BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.
BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst. N.S.
BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.
BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton. Ont.
BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.
BEER
E. L. Drewry, Winnipeg, Man.
BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.
BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.
BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.
BENT GOODS
The Crown Lumber Co., Woodstock, Ont.
BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.
BISCUITS
The Montreal Biscuit Co., Montreal. Que.
BLACK SHEETS
*A. C. Leslie & Co., Montreal.
BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton. Ont.
BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.
BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal. Que.
BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.
BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.
BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro. Ont.
BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.
BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.
BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*Jenckes Machine Co., Sherbrooke, Que.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
BOILER STANDS
Anthes Foundry Ltd., Toronto.
BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
BOLTS
*The National Acme Mfg Co., Montreal., Que.
BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.
BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.
BOOKLETS
R. G. McLean, Toronto.
BOOKS, blank
*The Brown Bros., Ltd., Toronto.
BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.
BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.
BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.
BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.
BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.
BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton. Ont.
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

*For Display Advertisement see Index, Page 1061



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*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS GOODS
*United Brass & Lead Ltd., Toronto.

BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.

BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.

BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.

BUCKET TANKS
*The General Fire Equipment Co., Limited, Toronto, Ont.

BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.

BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company. Toronto and Montreal.

BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.

CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.

CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.

CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.

CALENDARS, ADVERTISING NOVELTIES, etc.
Rolph & Clark, Limited, Toronto.
Lawson & Jones, Limited, London, Ont.

CAMERAS
Canadian Kodak Co., Limited, Toronto.

CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.

CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited. Montreal.

CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.

CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal. Que.

CARBIDE
*Canada Carbide Co., Ltd., Montreal. Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office Toronto.

CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto.

CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto

CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd

CARBONS, flame
Canadian Carbon Co., Limited, Toronto.

CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.

CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited Toronto.

CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited

CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited. Toronto.

CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited. Toronto

CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.

CARRIERS
*Richards-Wilcox Canadian Co., Limited. London, Ont.

CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier Co., Limited Toronto.

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.

CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.

CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.

CARTONS, lithographed
Harris Lithographing Co., Toronto.

CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited. Toronto.

CASTINGS, brass
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Limited Toronto.

CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, grey iron
*Dodge Mfg Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

CASTINGS, malleable iron
*Galt Malleable Iron Co., Ltd., Galt, Ont.

CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.

CATALOGUE MAKERS
Grip, Ltd., Toronto.

CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.

CELLBOARD
Adams Cellboard Co., Toronto, Ont.

CEMENT GUNS
Steel and Radiation Ltd. Toronto

CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.

CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.

CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont

CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.

CHAIR SEATS, fibre
*Beveridge Paper Co., Limited Montreal.

CHEMICALS
*Cosmos Chemical Co., Port Hope
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.

CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited Toronto

CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd Toronto

CIGARETTES AND TOBACCO
Philip Morris & Co., Limited Montreal, Que

CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited Galt, Ont.

CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland Ont.

CLOCKS, TIME
*International Time Recording Co of Canada, Ltd. Toronto.

CLOCKS, WATCHMEN'S
*The General Fire Equipment Co. Limited, Toronto.

CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.

CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.

CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.

CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.

CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.

CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.

CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.

COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.

COFFEE
S. H. Ewing & Sons, Montreal, Que.

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.

COLLARS
The Standard Shirt Co., Limited, Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto
Rolph & Clark, Ltd., Toronto.

CONCENTRATORS
*Jenckes Machine Co., Sherbrooke, Que.

CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited Toronto.

CONDUITS, fibre tubing
*Beveridge Paper Co., Limited, Montreal.

CONDUITS FOR INTERIOR WIRING
*Condnits Company, Ltd., Toronto.

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
*Canadian Allis-Chalmers, Limited, Toronto.

CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*Jenckes Machine Co., Sherbrooke,

COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

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COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DENIMS
Hamilton Cotton Co., Hamilton, Ont.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DOWELS
*Toy Products Ltd., Farm Point, P.Q.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
*Jenckes Machine Co., Sherbrooke.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.
ELECTROTYPING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.
ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
Rolph & Clark, Limited, Toronto
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.
ENGRAVING
*J L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa, Limited, Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.
EXCELSIOR
*Delany & Pettit, Ltd., Toronto.
EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal, Que.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited, Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.
FILING CABINETS
*Office Specialty Co., Newmarket, Ont.
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.
FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.

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FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited, Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited. Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada. Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FLAGS
*Scythes & Co., Limited, Toronto.
FLASHLIGHTS
Canadian Carbon Co., Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, hot air
Bedford Stove Co., Bedford, Que.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.
GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.
GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited. London, Ont.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited. Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton. Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills. P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Onto.
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville. Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville. Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal. Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal. Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.
IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.

*For Display Advertisement see Index, Page 1061

IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal Que
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited. Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto.
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que.
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAGER
E. L. Drewry, Winnipeg, Man.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.

LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock sole
The Breithaupt Leather Co., Ltd., Berlin, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
Rolph & Clark, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
MACHINE TOOLS
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car shop
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, tannery
W. P. Plant, Hastings, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.

MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILING
*The Pedlar People Limited, Oshawa.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People Limited, Oshawa.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R Clarke & Co. Ltd Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.

*For Display Advertisement see Index, Page 1061

NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NICKEL OXIDE
Conagas Reduction Co., Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barnard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, gummed tapes
Gummed Papers, Ltd., Brampton, Ont.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, writing, high-grade
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Time Recording Co. of Canada, Ltd., Toronto.
PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES, black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Anthes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
PRESSES, veneer
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited, Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.

*For Display Advertisement see Index, Page 1061

*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.

PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.

PUNCHES
*Pratt & Whitney Co., Dundas.

PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.

RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.

RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.

RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.

RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.

RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.

RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.

REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.

"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.

REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.

REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.

REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.

REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.

REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.

REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.

RINGS, gold
Caron Bros., Montreal, Que.

RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.

RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.

ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.

ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.

RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.

RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.

RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.

SALT
Canadian Salt Co., Ltd., Windsor, Ont.

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, crosscut and band
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.

SCALES
The Gurney Scale Co., Hamilton, Ont.

SCALES, counter
The Gurney Scale Co., Hamilton, Ont.

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.

SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.

SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited, Toronto.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.

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Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PEN STOCKS
*Jenckes Machine Co., Sherbrooke.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London

STEEL WIRE RODS
*The Steel Company of Canada, Limited. Hamilton.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls. Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.

TANKS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TAPES, paper and cloth, gummed and ungummed
Gummed Papers, Ltd., Brampton,

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited. Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Time Recording Co. of Canada, Ltd., Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.

TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton, Ont.

TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.

TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.

TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.

TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.

TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS
The Gurney Scale Co., Hamilton, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.

TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.

TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.

TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.

TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.

TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal, Que.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton. Ont.

TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.

TUBING, gold and silver
Canadian Seamless Wire Co., Toronto

TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TURPENTINE
*Brown Corporation, La Tuque, Que.

TWEEDS
Rosamond Woollen Co., Almonte, Ont.

TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.

TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.

TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont

UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.

UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

UNIONS
*Dart Union Co., Ltd., Toronto, Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.

UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.

VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, regrinding globe, angle, cross checks, swing checks, etc.
Penberthy Injector Co., Ltd., Windsor, Ont.

VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.

VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.

VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.

VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.

VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

WAGONS
TudhopeAnderson Co., Ltd., Orillia, Ont.

WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.

WASHERS
*The Steel Company of Canada, Limited. Hamilton.

WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.

WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.

WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.

WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

*For Display Advertisement see Index, Page 1061

WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal. Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton. Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John MacDougall Caledonian Iron Works Co., Ltd., Montreal Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.

WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHISKY
*Hiram Walker & Sons, Ltd., of Canada, Ltd., Hamilton, Ont. Walkerville, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St Catharines. Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal. Que.
A. Ramsay & Son Co., Montreal. Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited. Brantford. Ont.
*Ontario Wind Engine & Pump Co., Ltd Toronto
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada. Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE CLOTH
*Canada Wire & Iron Goods Co. Hamilton.
C. H. Johnston & Sons, Ltd., Montreal. Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited. Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited. Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal. Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto. Iron and Brass Goods Works Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Company of Canada. Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Page 1061

ARE YOUR STEAM PIPES INSULATED?

IF NOT YOU ARE BURNING MONEY

A GOOD COVERING pays for itself in one Season, and is a revenue producer indefinitely. The Best is the Cheapest **WE HAVE IT**

EUREKA MINERAL WOOL & ASBESTOS COMPANY

118 ADELAIDE STREET WEST, TORONTO, ONTARIO

TRY US FOR

NICKEL PLATING

THE BOOTH-COULTER COPPER & BRASS COMPANY, LTD.

115-121 SUMACH STREET - - - TORONTO, CANADA

Cable Address "Therson," Toronto Telephone Main 2863

THOMSON, TILLEY & JOHNSTON

BARRISTERS, SOLICITORS, etc.

D. E. THOMSON, K.C STRACHAN JOHNSTON W. N. TILLEY
ARTHUR J. THOMSON R. H. PARMENTER

SOLICITORS FOR THE CANADIAN MANUFACTURERS' ASSOCIATION

Offices—Toronto General Trusts Building
59 Yonge Street

TORONTO
Canada

VOL. XVIII

No. 9

Industrial Canada

CANADIAN PRODUCTS NUMBER



Big Buying

will soon be done by the Corporation and people of Halifax. It will be good judgment for all manufacturers and merchants who are in a position to supply the wants incident to the re-construction of the City to make known the fact by advertising in the Halifax papers.

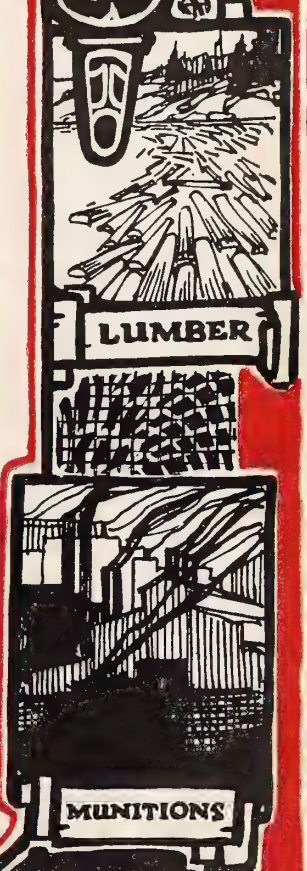
We are particularly well equipped to prepare and place advertising of this character, because, aided by the publishers in Halifax we are in a position to know the needs of the people.

If you are interested in Halifax as an immediate market for your goods communicate with us.

J. J. GIBBONS, LIMITED

Advertising Agents

Montreal Toronto Winnipeg



$2. PER YEAR.

Published by the

CANADIAN MANUFACTURERS ASSOCIATION.

HEAD OFFICE TORONTO Ont.

FOR POLISHING USE CORALOX

(AN ELECTRIC FURNACE CORUNDUM)

Ask us for Free Trial Sample — Made in Canada

D. A. BREBNER LIMITED, HAMILTON, ONT.

AUTOMOBILE PARTS
DROP FORGINGS

F&SCo. Quality & Service

SHEET METAL WORK
GENERAL STAMPINGS

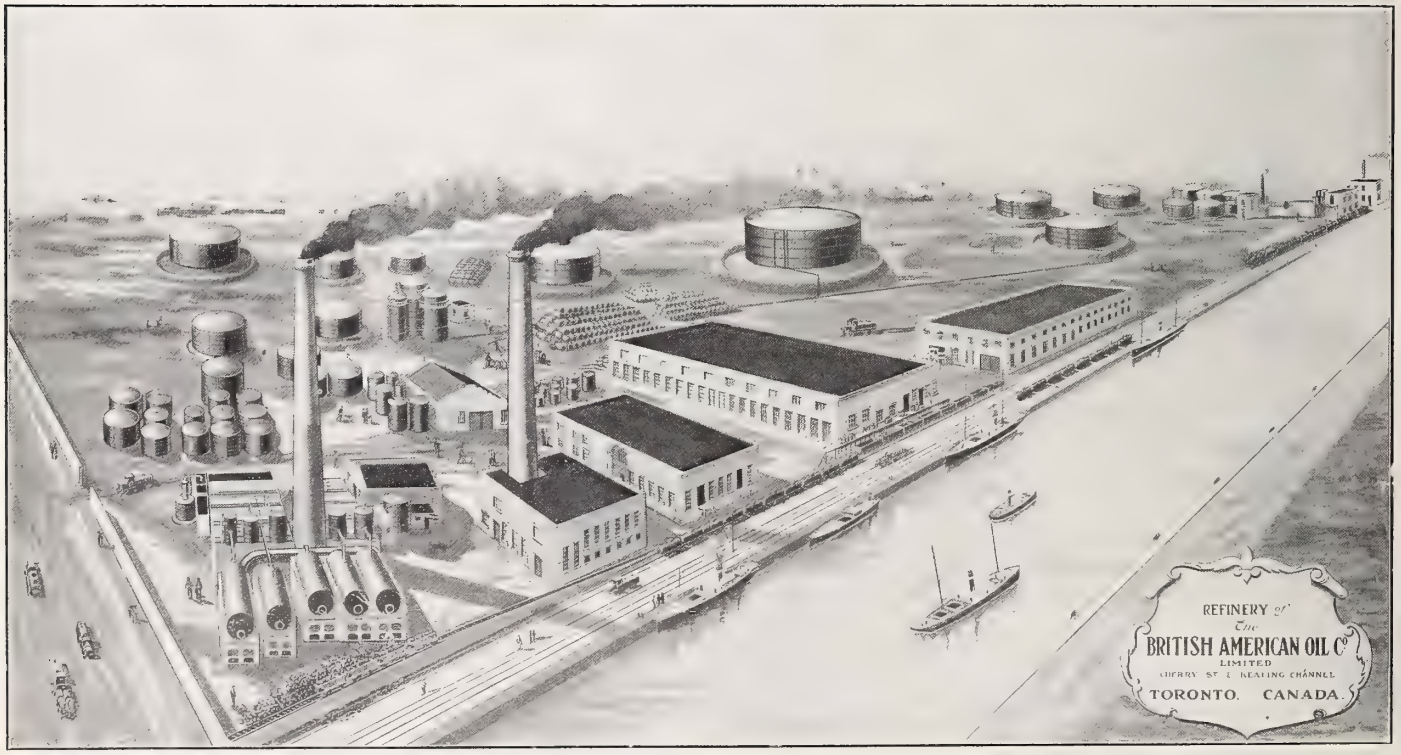
We have erected and are now operating

THE LARGEST COMMERCIAL DROP FORGE PLANT IN CANADA

We are equipped to handle large forging contracts.
This expansion also increases our stamping facilities.
We stand by our Motto: Quality and Service.

DOMINION FORGE & STAMPING CO., LIMITED
Walkerville - Ontario

THE BRITISH AMERICAN OIL CO., LIMITED



Head Office: ROYAL BANK BUILDING, TORONTO — Branches: Montreal, Ottawa, London, Windsor, Etc.

EVERY man who has ever used Dart Union Pipe Couplings, and watched results knows that they are a mighty good investment.

Quick and Easy Communication Among All Departments



The Presto-Phone—the Canadian Automatic that requires no Switchboard operator

This is a necessity for every modern industrial organization. But it should not be obtained at the expense of tying up your outside telephone lines. The best method is to instal the

PRESTO-PHONE

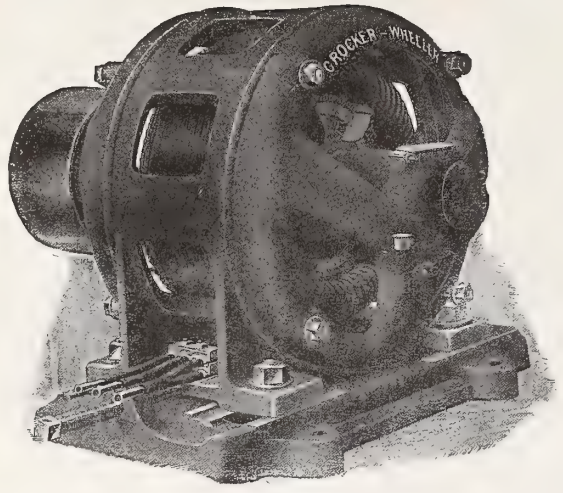
Canadian Automatic Telephone System

This is an All-Canadian system—designed and manufactured in Canada—that requires no central operator. We do not just rent the system—but sell it outright. And its cost is so low that no factory should be without it, especially in view of its great time-saving qualities.

Write us to-day for complete details.

Canadian Independent Telephone Co., Limited

263 Adelaide St. W. - - Toronto



THE DESIGN OF

CROCKER-WHEELER INDUCTION MOTORS

INCLUDES:

Heavy Shafts

Large Journals

High Power Factor

Excellent Efficiency

They have many other desirable features; Bulletin 155 describes them.

THE CANADIAN CROCKER-WHEELER CO., Limited

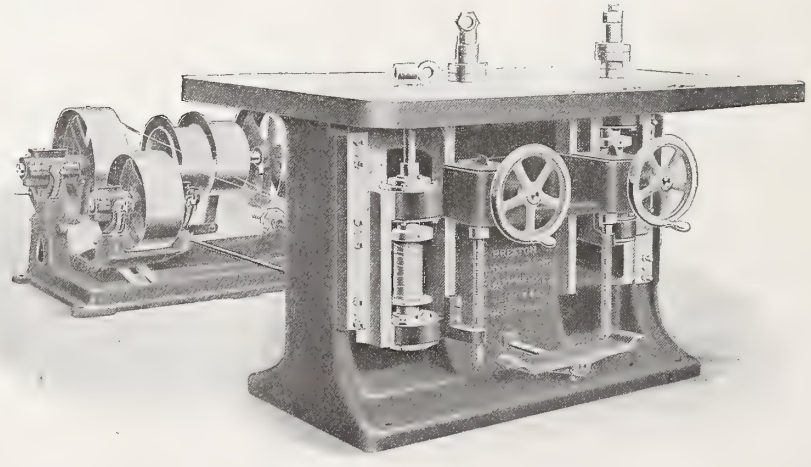
MANUFACTURERS AND ELECTRICAL ENGINEERS

Head Office and Works: St. Catharines **District Offices: Montreal, Toronto, Vancouver**

"Treat your machine as a living friend"

Don't Waste Time

for which you are paying big money by having a Machine in your plant which is not giving you a maximum of production every day



No. 162 High-Speed Ball-Bearing Shaper

SEE THIS MACHINE!

It's built absolutely on honor, and will turn out 100% MORE WORK than the ordinary shaper which you are now using. That's our claim; twice the amount of work and much easier on the operator. Is it worth your while to cut your shaper cost in two? If so, drop us a line for more particulars.

THE CHEVROLET MOTOR CO. ARE USING 7 OF THESE MACHINES IN THEIR PLANT AT OSHAWA.

"The Machine you want in your plant is not the cheapest machine to buy but the machine that will save you the most money to use."

The Preston Woodworking Machinery Co. Limited, - Preston, Ont.

C. M. A.
BULLETIN
December 20, 1917
SAVE YOUR FUEL

BECAUSE:

In the NATIONAL INTERESTS:

The question of coal supply is becoming so acute that it may be necessary to limit its use only to those engaged in the manufacture of national requirements. An absolute shortage of fuel would very seriously handicap important war industries and cause much suffering and hardship.

IN YOUR OWN INTERESTS:

Therefore the saving of fuel is a patriotic obligation, the execution of which will benefit yourself and your country. The era of present-day efficiency demands economy in every direction. The saving of fuel will be one of the most important questions.

THE HEATING OF INDUSTRIAL PLANTS consumes a large percentage of the yearly coal supply.

Large numbers of our bigger steam users are daily wasting steam which could be used to efficiently and economically heat their plants.

Other heating plants are "eating their heads off" in needless consumption of fuel owing to faulty methods of handling the supply of steam and water of condensation.

The use of exhaust steam for heating is the last word in heating efficiency, if proper devices are used for handling air and water of condensation and prohibiting the loss of steam.

The DUNHAM HEATING SERVICE

A personal inspection of your heating methods will result in our being able to prescribe a real remedy for your heating troubles.

Specialized effort along these lines has enabled us to bring about some remarkable savings in fuel—which we will be glad to refer you to.

You are under no obligation but to allow us an opportunity of advising with you on "How to improve your heating methods" and SAVE YOUR FUEL.

WRITE THE

C. A. DUNHAM CO., LIMITED

Toronto, Canada

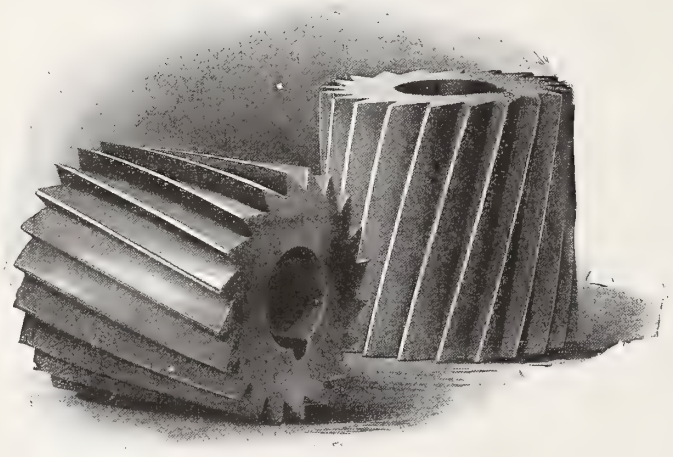
HALIFAX MONTREAL WINNIPEG CALGARY VANCOUVER OTTAWA

Responsible Heating Contractors Everywhere install the Dunham System of Heating.

SMALL TOOLS

MILLING CUTTERS

In High Speed or Carbon Steel



Plain Side Convex
Concave Angular
and
Special Forms

Special Inserted
Blade Cutters

Our tools are manufactured from the best materials procurable, by skilled workmen with most modern equipment.

QUALITY GUARANTEED

Prompt service is assured at our nearest store, where P. & W. Small Tools are stocked for immediate delivery.

Write for Our No. 9 Catalogue

PRATT & WHITNEY CO.
of Canada, Limited
Dundas - Ontario

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	B.C. Equipment Co.

BERTRAM
MACHINE TOOLS

For Structural, Bridge and Shipbuilding Plants

Modern in design and built for heavy service, our line embraces a varied equipment of Punches, Shears, Bending and Straightening Rolls, Coping Machines, Rotary and Plate Planers.

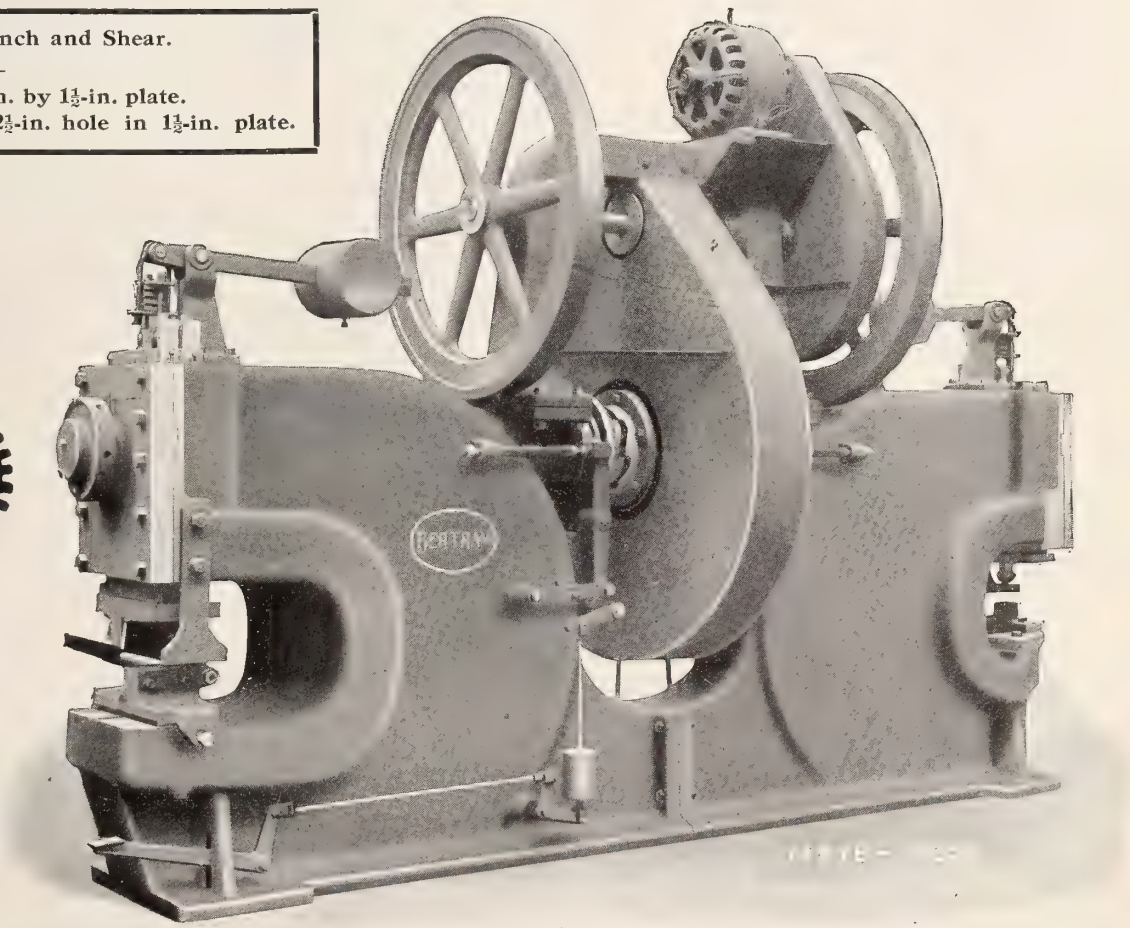
The assistance and advice of our engineers are yours for the asking.

THE JOHN BERTRAM & SONS CO., Limited

Dundas - Ontario - Canada

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
723 Drummond Bldg.	1002 C.P.R. Bldg.	1205 McArthur Bldg.	609 Bank of Ottawa Bldg.

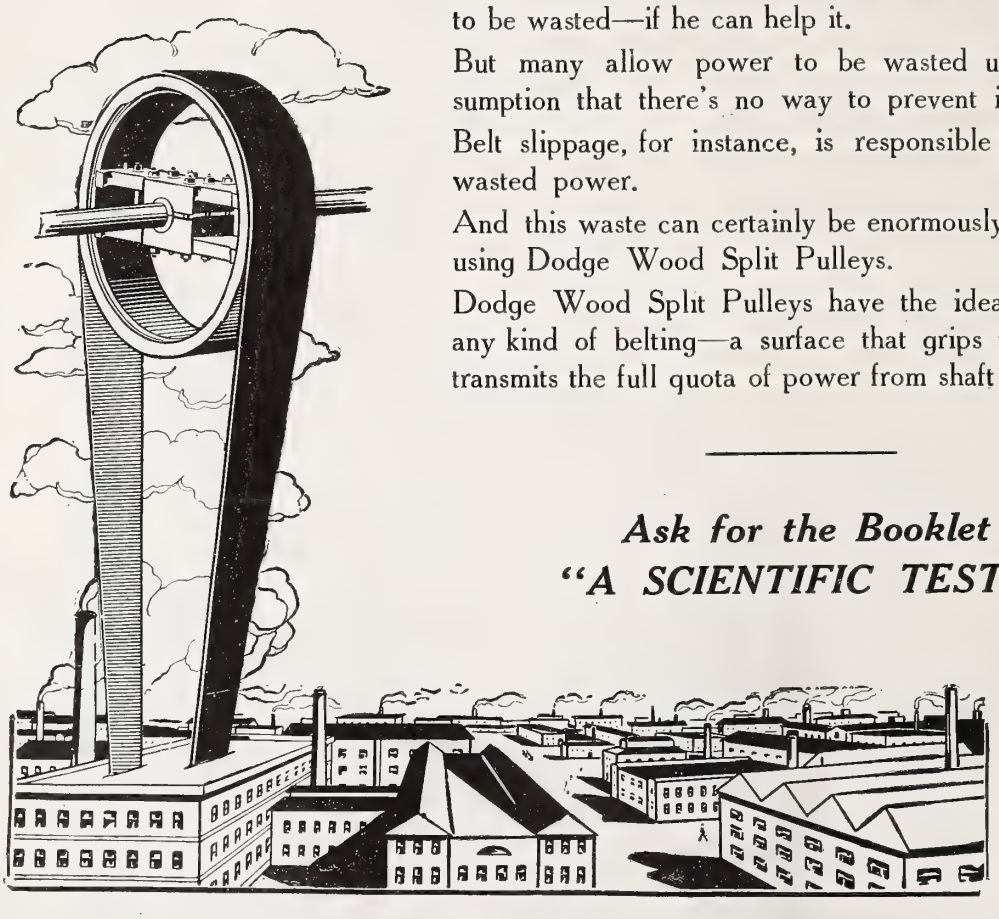
Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.



DODGE
Wood Split Pulleys

You wouldn't waste money---

So why waste power that costs you money?



Of course no business man will deliberately allow power to be wasted—if he can help it.

But many allow power to be wasted under the assumption that there's no way to prevent it.

Belt slippage, for instance, is responsible for a lot of wasted power.

And this waste can certainly be enormously reduced by using Dodge Wood Split Pulleys.

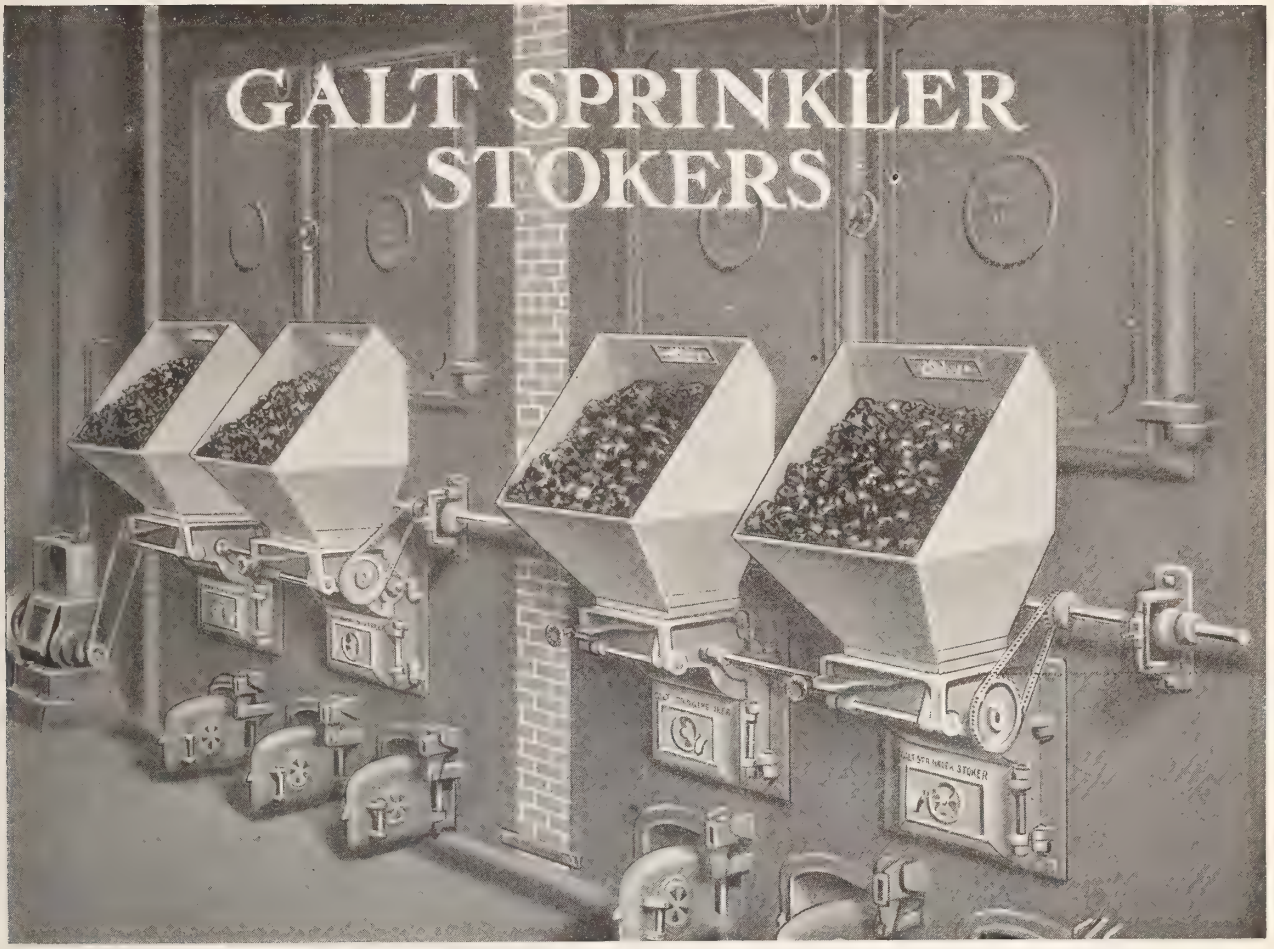
Dodge Wood Split Pulleys have the ideal surface for any kind of belting—a surface that grips the belt and transmits the full quota of power from shaft to machine.

Ask for the Booklet
"A SCIENTIFIC TEST."

Dodge Manufacturing Co., Limited

Canada's Greatest Pulley Makers

TORONTO



Galt Sprinkler Stokers Applied to Two 300 H.P. Water Tube Boilers

Are You Wilfully Wasting Coal?

THE BUREAU OF MINES, WASHINGTON, D.C., SAYS :---

"The ordinary method of hand-firing boiler furnaces violates all the principles laid down for securing good combustion."

What Galt Sprinkler Stokers Will Really Do

(1) Effect a saving in fuel from 10% to 20%.
(2) Give a brilliant and perfectly level fire.
(3) Give practically smokeless combustion.
(4) Increase the boiler capacity to a large degree.
(5) Operate with natural, forced, or induced draft.
(6) Operate with less repairs than other stokers.
(7) Mechanically feed and uniformly sprinkle the coal continuously over the entire grate surface—with the fire doors closed.
(8) Burn bituminous, anthracite or lignite fuel.
(9) Eliminate the necessity of expert firemen.

Send for Illustrated Catalogues

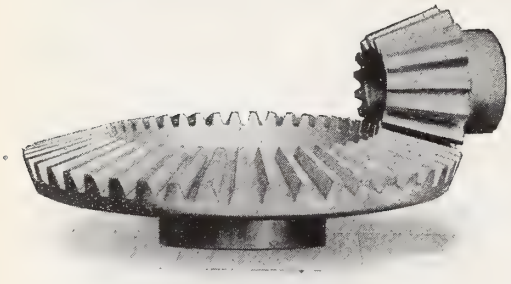
GALT FOUNDRY COMPANY -- Galt, Ont.

Toronto Office—826 Traders Bank Building **Phones : Main 4362, Junc. 3354**



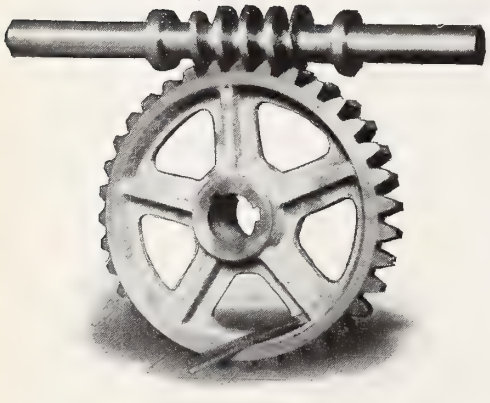
CUT GEARS





The manufacture of Cut Gears has been our specialty for years, and the result of our experience is a product scientifically correct.

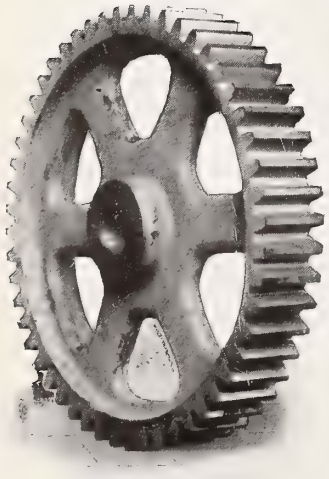
Our enlarged plant and increased facilities mean for gear users quick delivery and reasonable prices on all types of cut gears.

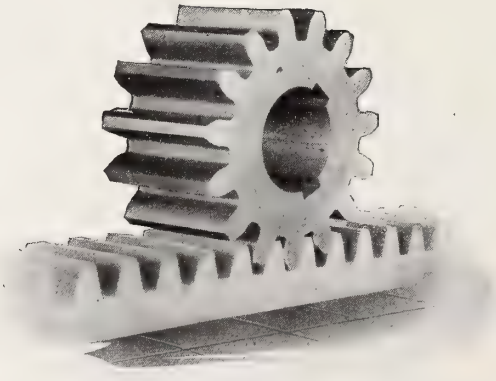


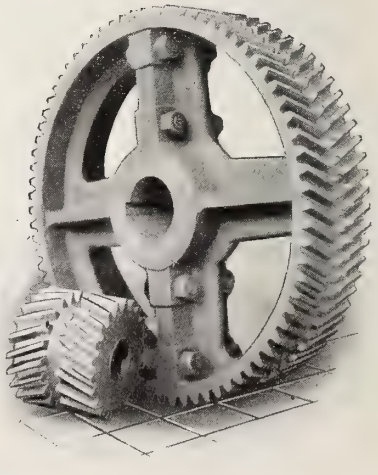
Write for quotations.

Hamilton Gear & Machine Co.

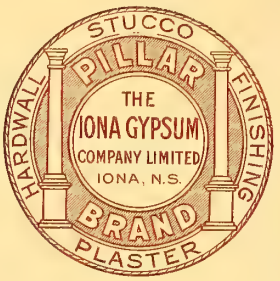
Van Horne Street - TORONTO







The Seal That Guarantees You the Best in Gypsum Products



"Pillar Brand" Plasters are manufactured from the highest grade Nova Scotia Gypsum Rock, and are fathered by science and experience in the making. Our

Plaster of Paris
Moulding Plaster
Dental Plaster

are made from specially selected rock particularly suited for the manufacture of these high-grade Plasters.

"PILLAR BRAND" HARDWALL PLASTER

"The Plaster that Lasts"

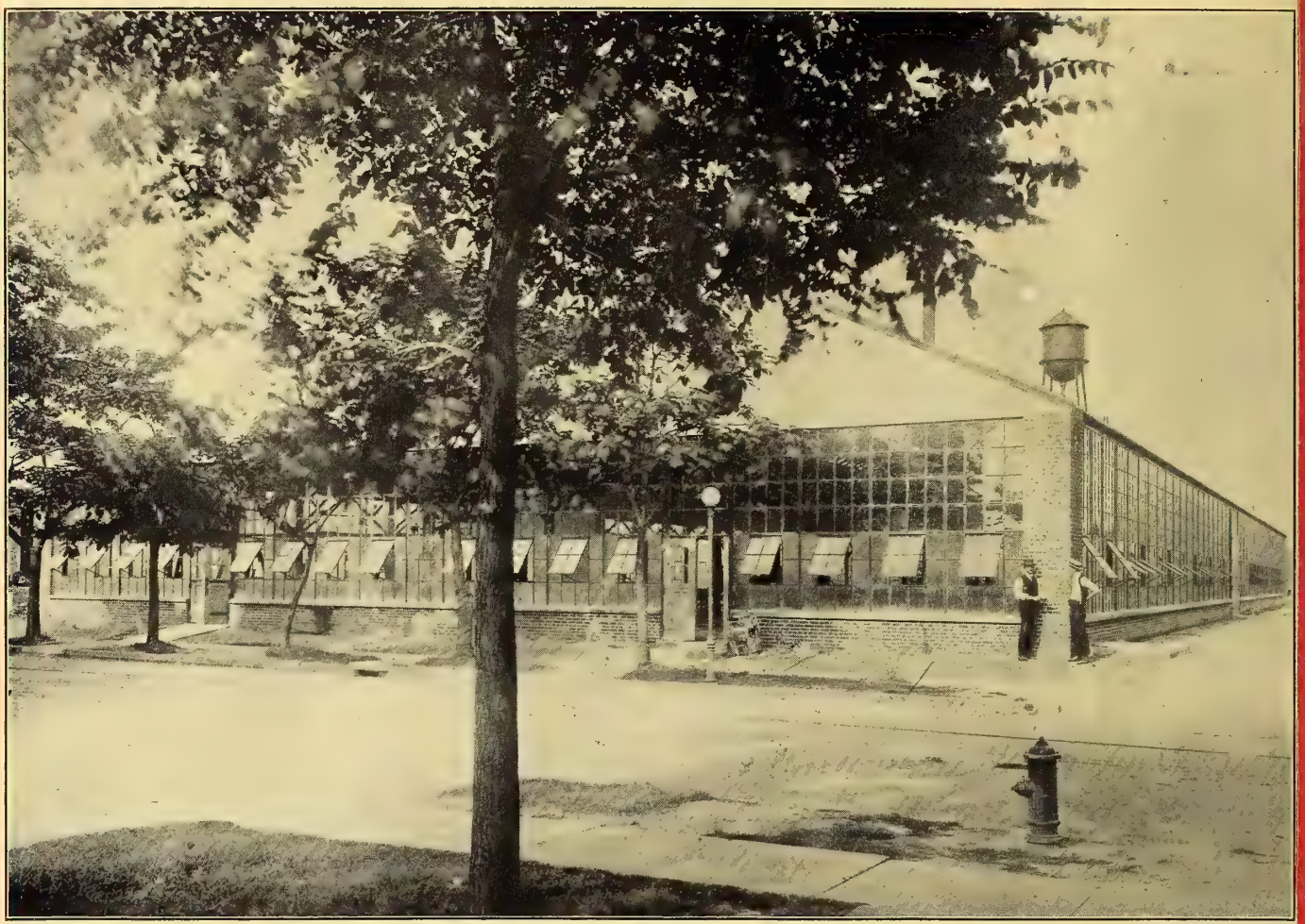
has wonderful spreading qualities and is mixed only with the best grade of goat and cattle hair, thoroughly washed and specially prepared.

Facilities for shipment by rail or water.
Inexhaustible supply of high-grade Gypsum Rock.
Specially situated to handle foreign shipments.

WRITE US

The Iona Gypsum Company, Limited

Head Office and Plant: IONA, NOVA SCOTIA, CANADA



THE WILT DAYLIGHT FACTORY

Where there's a WILT— There's the Way

QUALITY

TRADE WILT MARK

SERVICE

The largest exclusive manufacturer and producer of High-Grade Drills in Canada—Quality and Quantity

Wilt Twist Drill Co. of Canada, Limited

WALKERVILLE, ONTARIO, CANADA

"VICTORIA"

Canadian Furnace Co., Limited

Port Colborne, Ont.

Manufacturers of

Pig Iron
Brand "Victoria"

|

"Victoria" Foundry Iron

Strong—Soft—Neutral

|

"Victoria" Malleable Iron

Furnished to all Standard Analyses

↓

SOLE
SALES
AGENTS

M. A. HANNA & CO.

Cleveland, Ohio

Buffalo, N.Y. Pittsburg, Pa. Detroit, Mich.

TORONTO, ONT.



Our Sacred Duty

To contribute to Funds for relief does not discharge or liquidate the duty we owe to the brave men who are sacrificing their lives in the Trenches that we may live and enjoy the Blessings of Liberty and Happiness.

Better by far that we extend our Consideration in an effort to use in our Mills, our Factories, in our Cities and our Homes and all over this fair land, the products that Canadian labor produces, so that when the Boys come marching Home, they will be welcomed back to a Prosperous and Happy Canada.

Their sacrifice is worthy of our greatest effort—Our Duty is plain; Canada with Canadian Labor and Capital can produce, manufacture and distribute products sufficient to keep the Wheels of Industry Turning to the limit. The song of Prosperity and Happiness should ring out all over the land.

Let us sincerely pledge, to the extent of our needs, to purchase materials produced in Canada by Canadian Workmen, and the result of our efforts will return to us the Blessings of a Prosperous and Happy Nation.

The Steel Company of Canada

Limited

Hamilton - - - Montreal



Our Material Duty

Consideration. Courtesy and Right Intent, all add to the sum of Human Happiness. Not only do they benefit those to whom they are extended, but they survive in various forms, and add to the well-being of the Business World.

Quality plus Service is the basis on which prices are made. Competition in Quality and Service is a healthy condition, but competition in price alone tends to business ruination. All Service rendered has a far-reaching effect which tends to a better understanding, and Quality is remembered long after the price is forgotten.

Let the Standard of the Canadian Manufacturer and Producer be as High as the Best, and "Made in Canada" officially stamped on any article correspond with the mark "Sterling" on Silver

Let us attune ourselves to the Highest Standard of Quality and Service, and pledge to devote to this end all the means we possess, in the belief that Bigger Business will result through the gratitude of those we serve.

We are all one. No one can Thrive alone. No one Suffers alone. Industrial Prosperity tends to Happiness for all, and the Manufacturer who nails to the mast the Flag of Quality and Service is assisting in the development of a better and saner Business condition.

The Steel Company of Canada

Limited

Hamilton - - - Montreal

Made In 

Canada

RAILS
STEEL BARS
SPLICE BARS
STEEL TIE PLATES

Structural Shapes
Standard Merchant Bars
Ingots, Blooms, Billets and Slabs
Concrete Reinforcing Bars

PIG IRON
BASIC and BESSEMER

Let Us Quote on Your Requirements

Algoma Steel Corporation Limited
SAULT STE. MARIE, ONT.
DISTRICT SALES OFFICES: MONTREAL, QUE., AND TORONTO, ONT.

Dominion Steel Corporation
Limited

Dominion Coal Co., Limited
Dominion Iron & Steel Co., Limited
Cumberland Railway & Coal Co.
Black Diamond Steamship Co.

Miners and Distributors of

"DOMINION" AND "CUMBERLAND"
STEAM, GAS AND HOUSE COALS

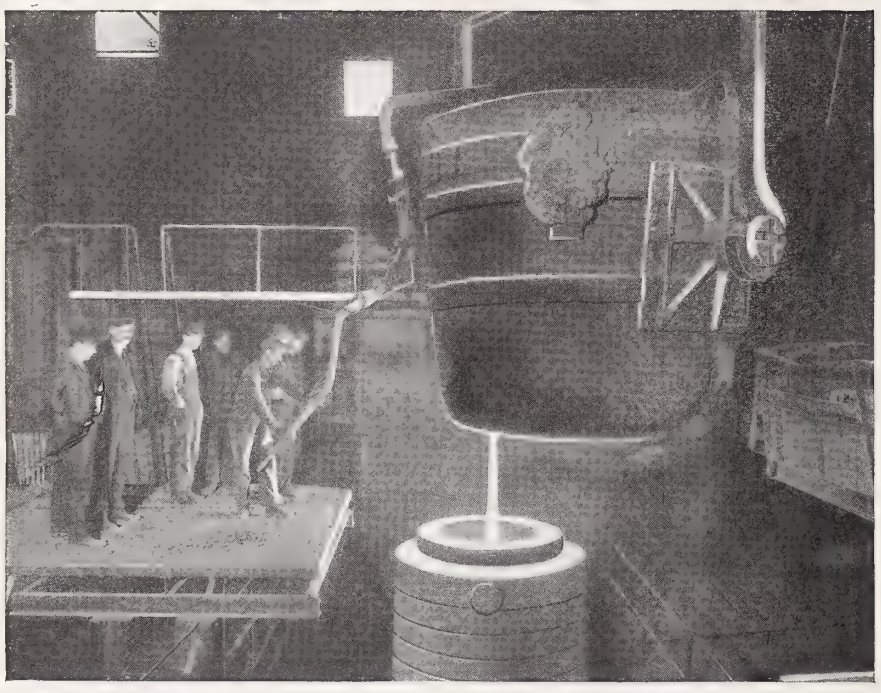
Agencies and Storage Depots at

HALIFAX, N.S. ST. JOHN, N.B. THREE RIVERS
QUEBEC and MONTREAL, QUE. ST. JOHN'S, NFLD.
CHARLOTTETOWN, P.E.I.

MANUFACTURERS OF

Pig Iron Steel Blooms and Billets Rails
Merchant Bars Wire Rods
Plain, Annealed and Galvanized Wire and Wire Fencing
Bright, Blued, Coated and Galvanized Nails, etc.
Ammonium Sulphate Sulphuric Acid

OUR FIELD IS THE WHOLE WORLD



A 30-Ton Ingot
being poured
at the
Blast Furnace
at
Sydney Mines
N.S.

"OLD SYDNEY COAL"

Shipped from North Sydney, N.S.

At Wabana, Nfld., the Company's Iron Mines are located, these being the richest in ore on the North American continent.

The Company's Collieries and Blast Furnaces are at Sydney Mines, N.S.

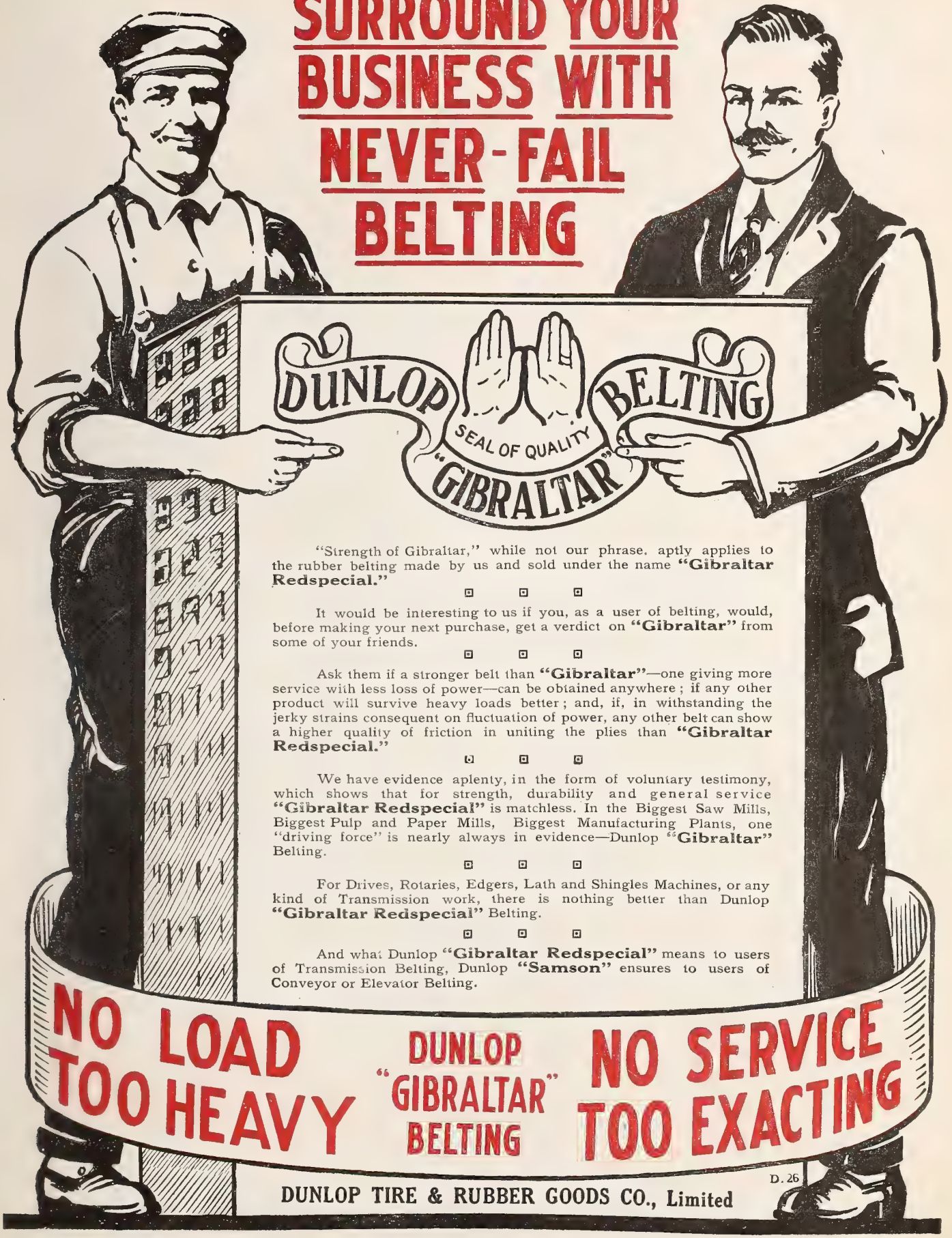
From the Steel Works and Car Works at New Glasgow come the Company's finished manufactured products.

Address All Correspondence to the Head Office

NOVA SCOTIA STEEL & COAL CO.
LIMITED

Head Offices:
NEW GLASGOW, N.S.

SURROUND YOUR BUSINESS WITH NEVER-FAIL BELTING



"Strength of Gibraltar," while not our phrase, aptly applies to the rubber belting made by us and sold under the name **"Gibraltar Redspecial."**

It would be interesting to us if you, as a user of belting, would, before making your next purchase, get a verdict on **"Gibraltar"** from some of your friends.

Ask them if a stronger belt than **"Gibraltar"**—one giving more service with less loss of power—can be obtained anywhere; if any other product will survive heavy loads better; and, if, in withstanding the jerky strains consequent on fluctuation of power, any other belt can show a higher quality of friction in uniting the plies than **"Gibraltar Redspecial."**

We have evidence aplenty, in the form of voluntary testimony, which shows that for strength, durability and general service **"Gibraltar Redspecial"** is matchless. In the Biggest Saw Mills, Biggest Pulp and Paper Mills, Biggest Manufacturing Plants, one "driving force" is nearly always in evidence—Dunlop **"Gibraltar"** Belting.

For Drives, Rotaries, Edgers, Lath and Shingles Machines, or any kind of Transmission work, there is nothing better than Dunlop **"Gibraltar Redspecial"** Belting.

And what Dunlop **"Gibraltar Redspecial"** means to users of Transmission Belting, Dunlop **"Samson"** ensures to users of Conveyor or Elevator Belting.

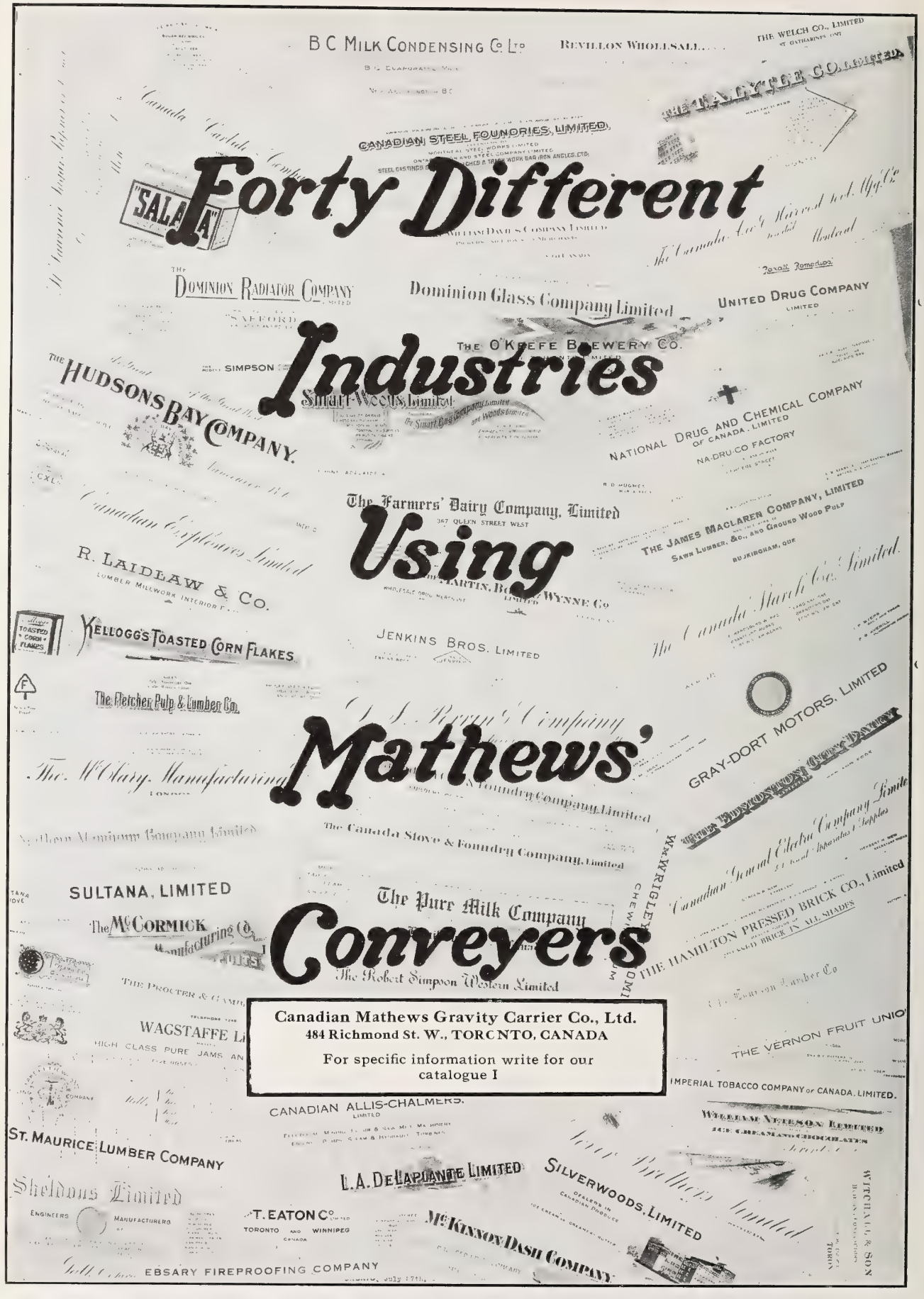
NO LOAD TOO HEAVY

DUNLOP "GIBRALTAR" BELTING

NO SERVICE TOO EXACTING

D. 26

DUNLOP TIRE & RUBBER GOODS CO., Limited


Forty Different
Industries
Using
Mathews'
Conveyers
B C Milk Condensing Co. Ltd
Revillon Wholesale
The Welch Co., Limited
Canadian Steel Foundries, Limited
"Salada"
The Dominion Radiator Company
Dominion Glass Company Limited
United Drug Company
The O'Keefe Brewery Co.
The Hudsons Bay Company
Simpson
Smart-Woods Limited
National Drug and Chemical Company of Canada, Limited
NA-DRU-CO Factory
The Farmers' Dairy Company, Limited
367 Queen Street West
The James Maclaren Company, Limited
Sawn Lumber, &c., and Ground Wood Pulp
Buckingham, Que
R. Laidlaw & Co.
Lumber Millwork Interior F...
Kellogg's Toasted Corn Flakes
Jenkins Bros. Limited
The Fletcher Pulp & Lumber Co.
Gray-Dort Motors, Limited
Canadian General Electric Company Limited
The Hamilton Pressed Brick Co., Limited
Sultana, Limited
The Pure Milk Company
The Robert Simpson Western Limited
The Vernon Fruit Union
Imperial Tobacco Company of Canada, Limited
William Neilson Limited
Canadian Allis-Chalmers
St. Maurice Lumber Company
Sheldons Limited
Engineers
Manufacturers
T. Eaton Co.
Toronto and Winnipeg
L. A. DeLaplante Limited
Silverwoods, Limited
McKinnon Dash Company
Ebsary Fireproofing Company
Canadian Mathews Gravity Carrier Co., Ltd.
484 Richmond St. W., TORONTO, CANADA
For specific information write for our catalogue I

Fairbanks Scales

The Fairbanks Dial Indicator may be applied to any existing scale.

Direct Reading
Gross or Net

Full Capacity



No Loose Weights

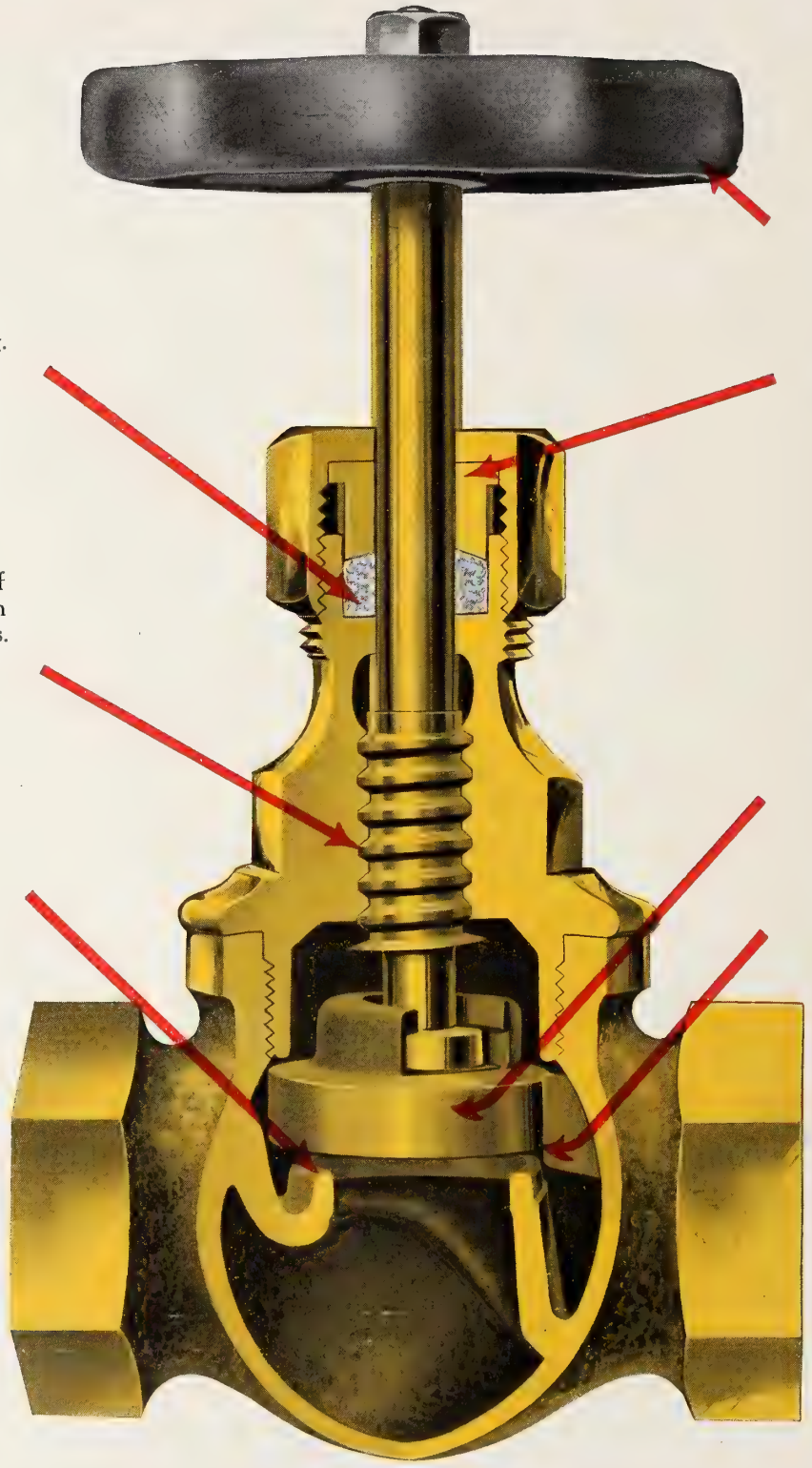
No Calculation

The Canadian Fairbanks-Morse Company, Limited

St. John Quebec Montreal Ottawa Toronto Hamilton Windsor Winnipeg
Saskatoon Calgary Vancouver Victoria

MADE IN SHERBROOKE

Fairbanks Valves



Corrugated Iron Wheel. Arrow cast on wheel shows direction Valve opens.

Palmetto Twist Packing.

Follower in Stuffing Box.

At least Four threads of Spindle engaged with Bonnet at all times.

Renewable Bakelite Disc slips over end of spindle. Can be replaced in less than one minute.

Raised round Seat. No sediment can lodge on it or injure Disc.

Guides cast on Body hold Disc centrally over seat.

The Canadian Fairbanks-Morse Company, Limited

St. John Quebec Montreal Saskatoon Ottawa Calgary Toronto Vancouver Hamilton Victoria Windsor Winnipeg

MADE IN SHERBROOKE

"MADE IN CANADA"



"PERFECTION" BUILT-IN BATHS

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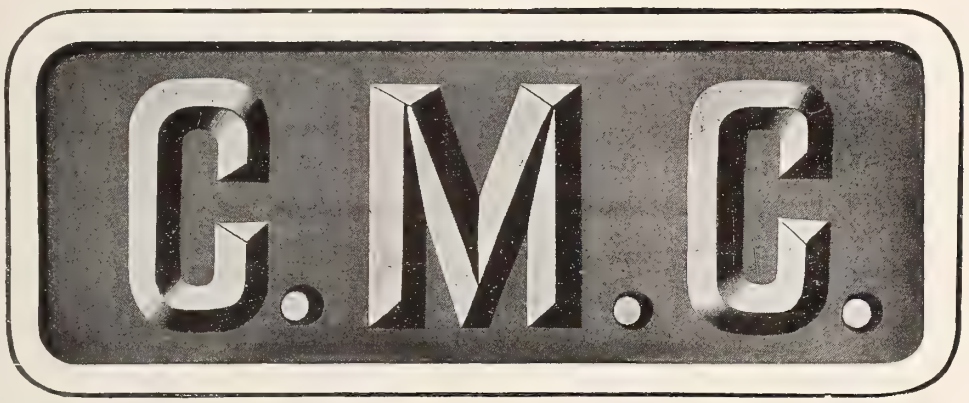
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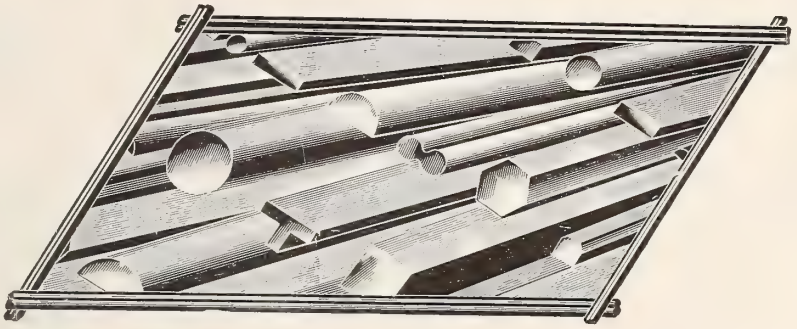
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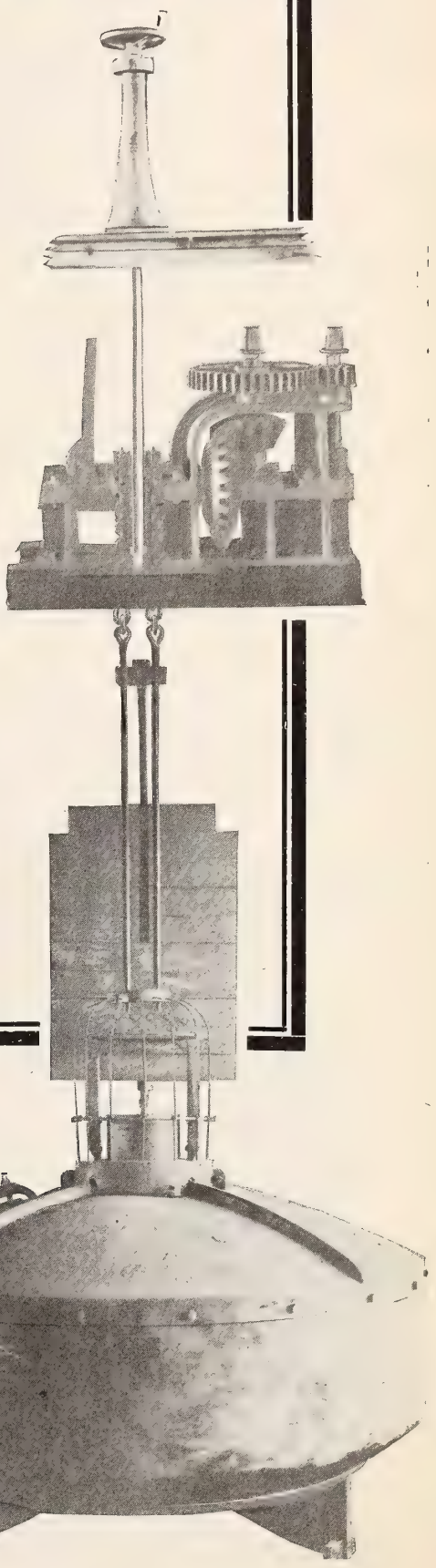
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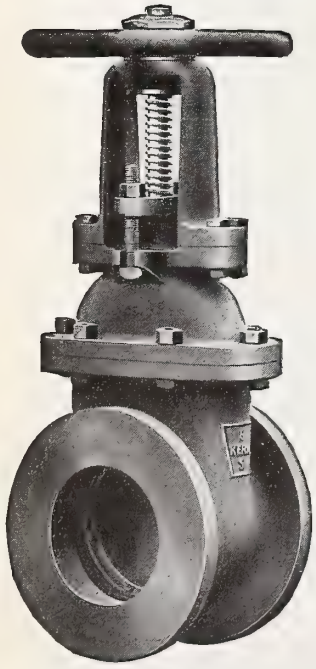


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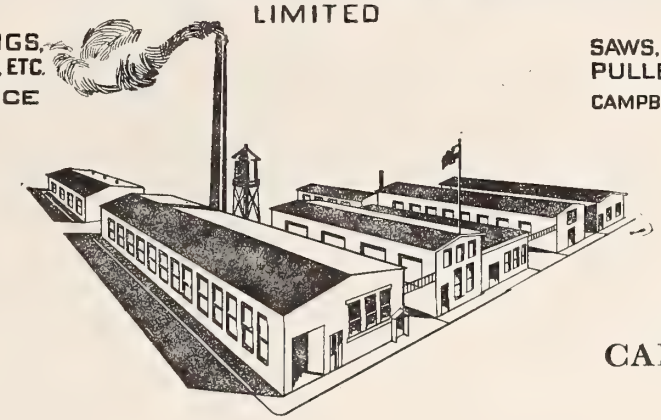
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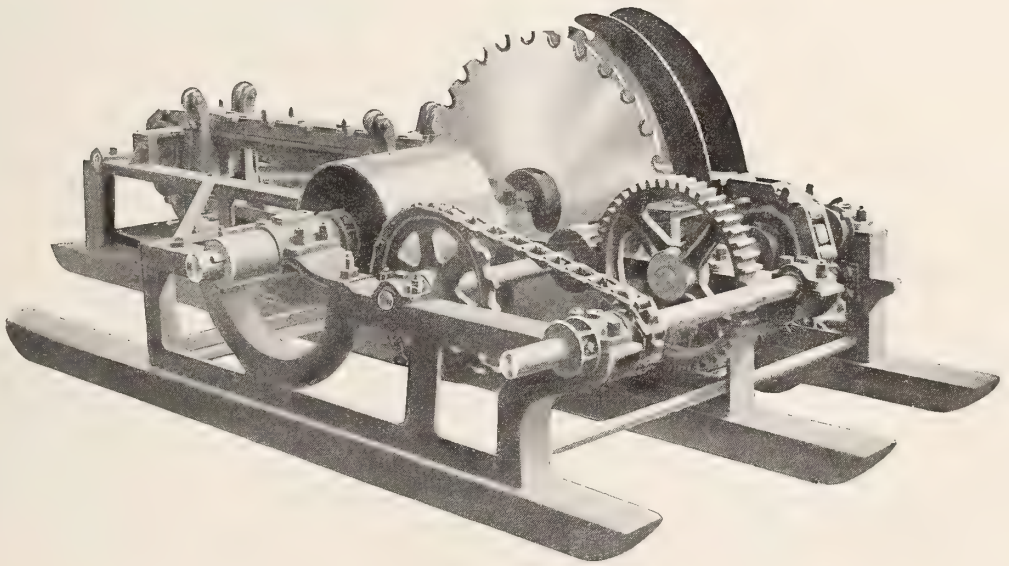


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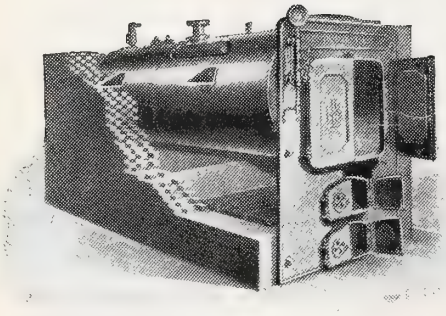
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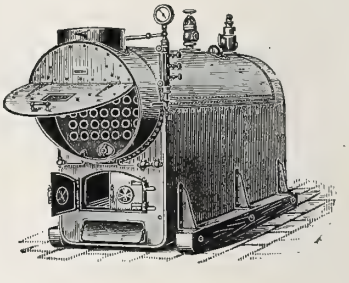
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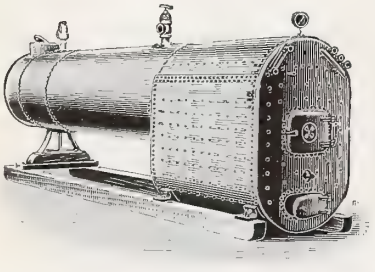


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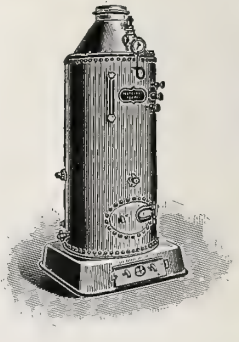
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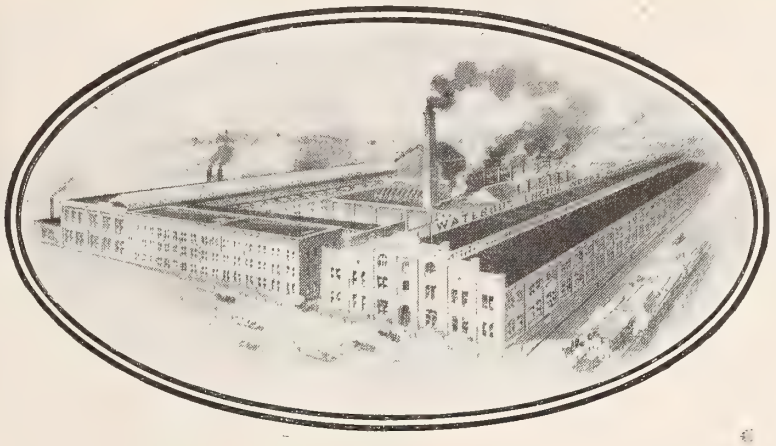




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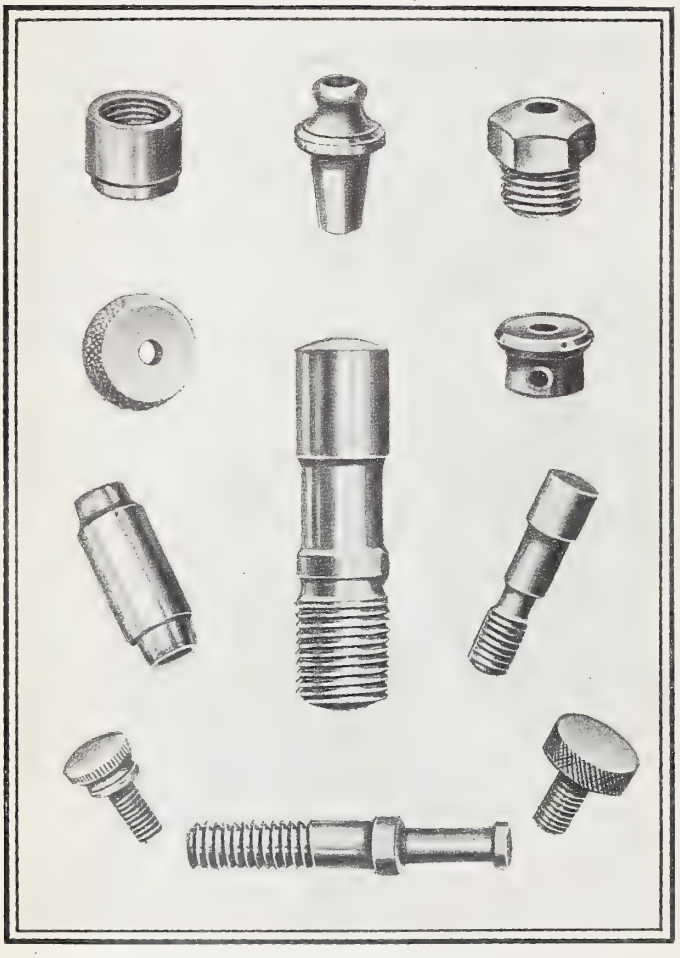
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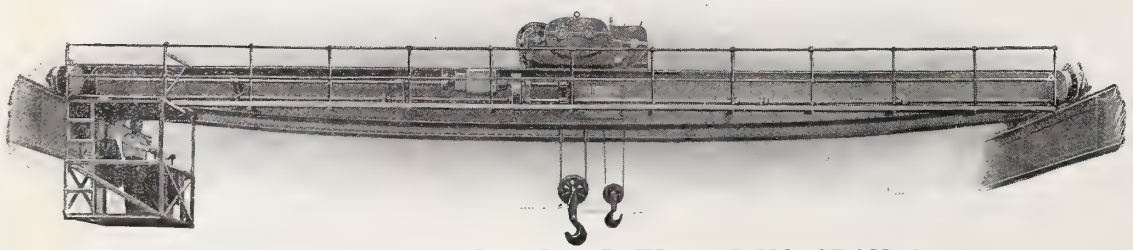
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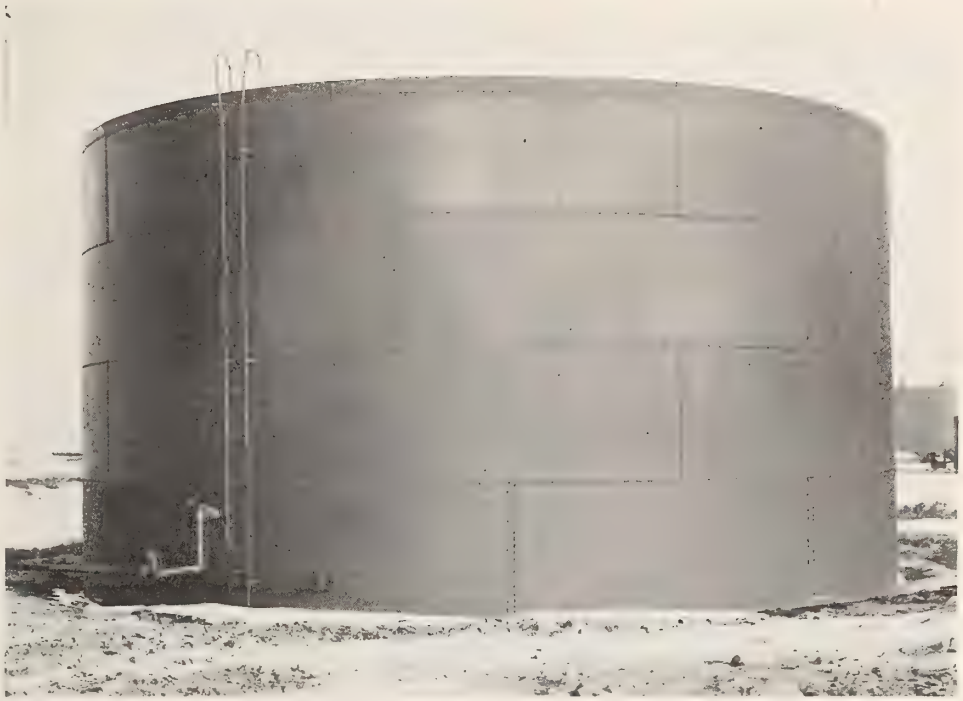
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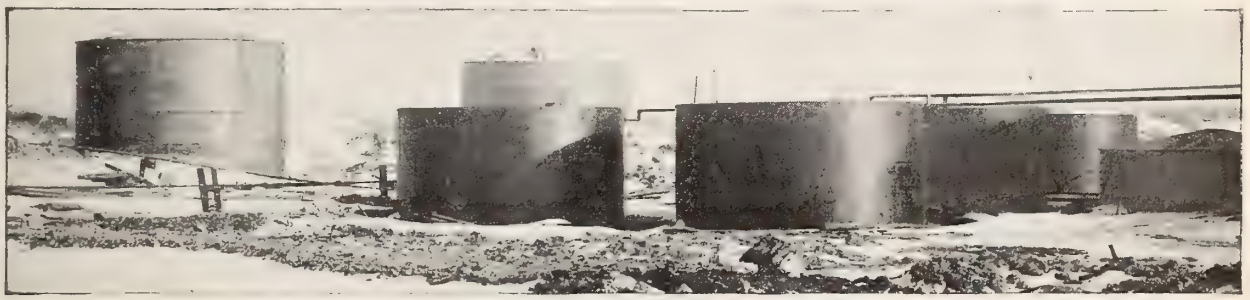
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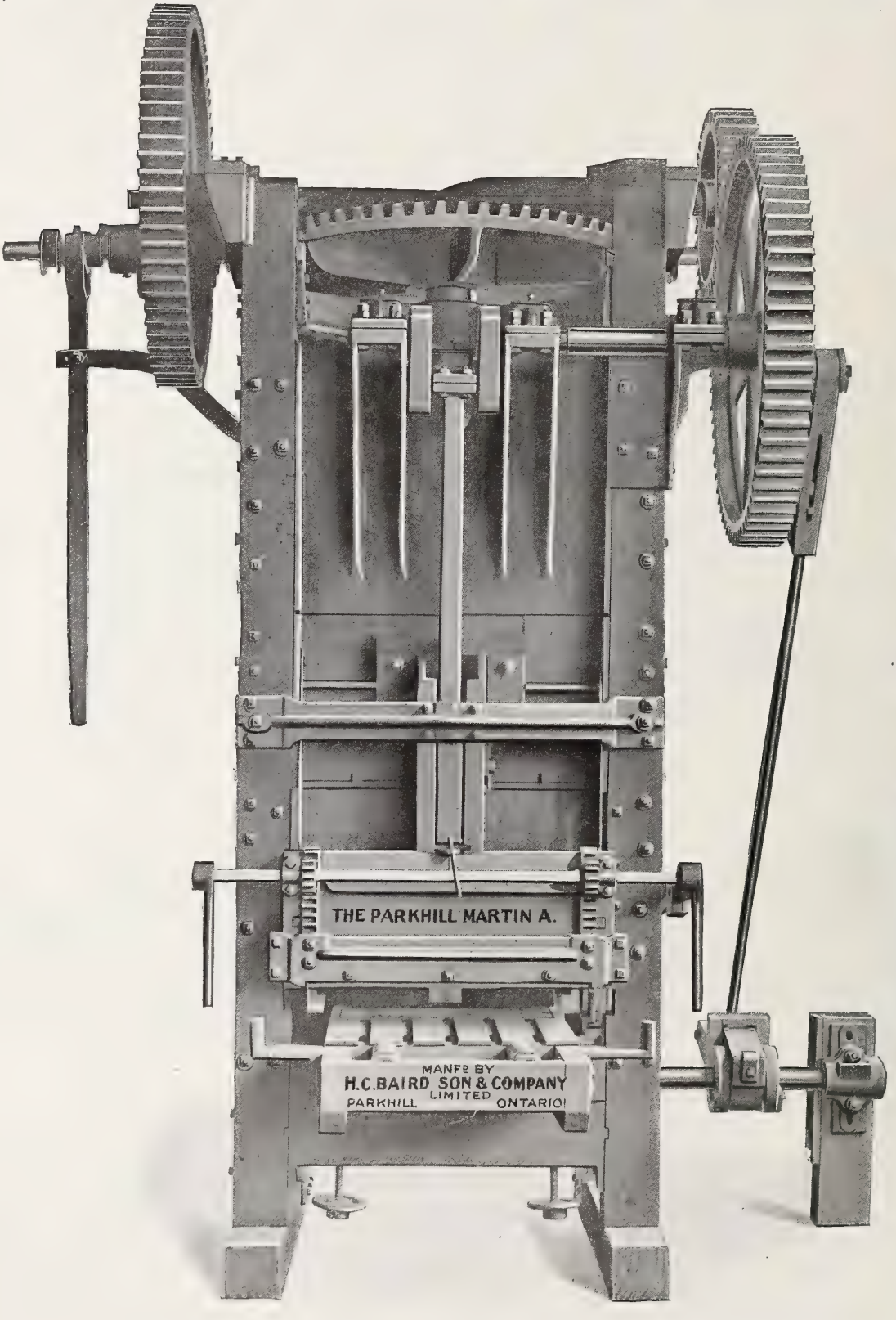
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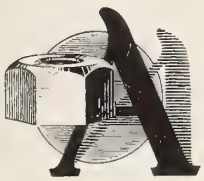
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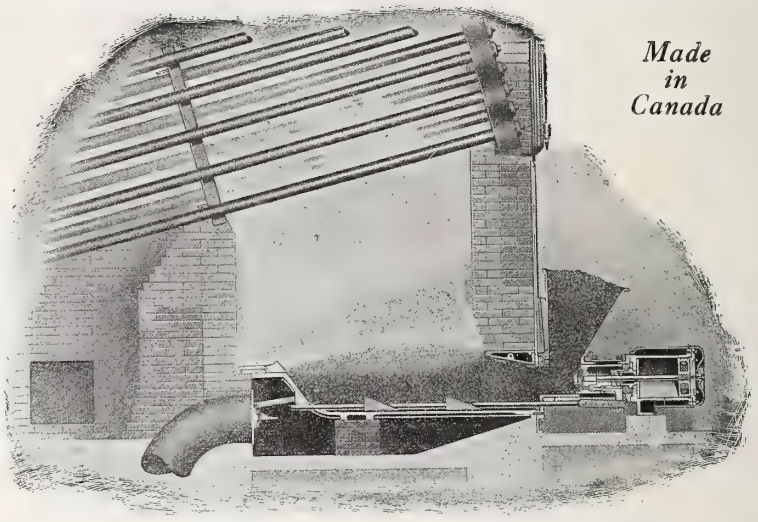
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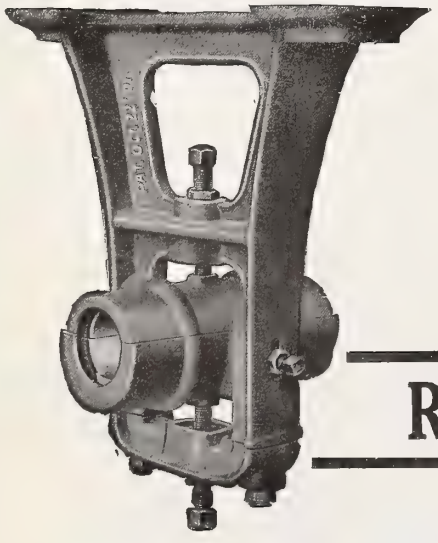
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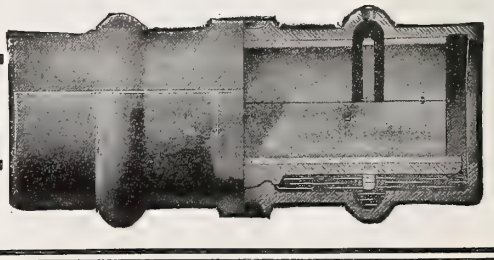
How much, in lost output and lost wages? For the cost of repairs is only a small item. Any way you figure, a burnt bearing is expensive.

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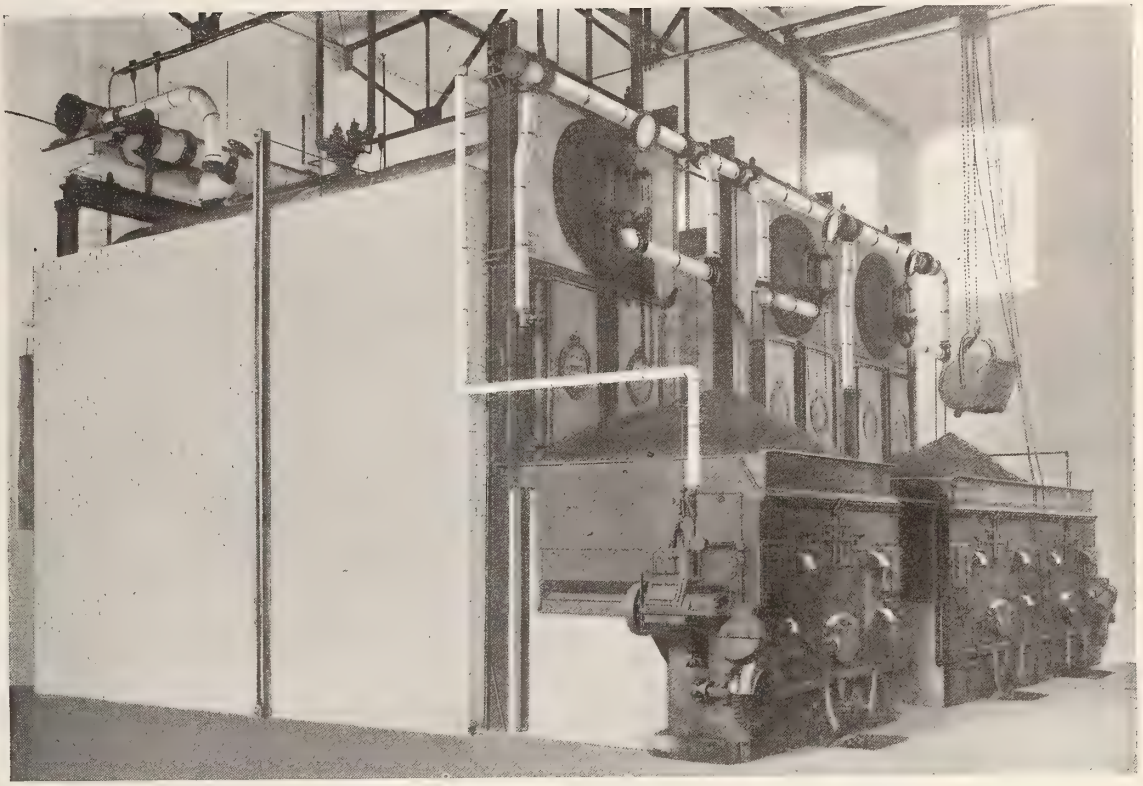
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POWER EQUIPMENT

BUILT TO MEET YOUR OWN REQUIREMENTS



The Boiler Room of The Robson Leather Co., Ltd., at Oshawa, Ont. Equipped with three G. & McC. Co. Single Drum Type "B" Sectional Water Tube Boilers

G. & McC. Co. Engines and Boilers

will provide your plant with

A Continuous and Economical Service

We Build

Horizontal and Vertical Steam Engines; Steam Turbines; Return Tubular and Water Tube Boilers; Heaters; Tanks; Stacks; Pumps and Condensers; Transmission Machinery; Safes, Vaults and Vault Doors.

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Spend just a few minutes with your pencil, and you will realize that the returns on your fuel and equipment investment can be surprisingly increased with a MOREHEAD "Back to Boiler" SYSTEM. Every heat unit in your steam represents so much coal—so much cold cash. The

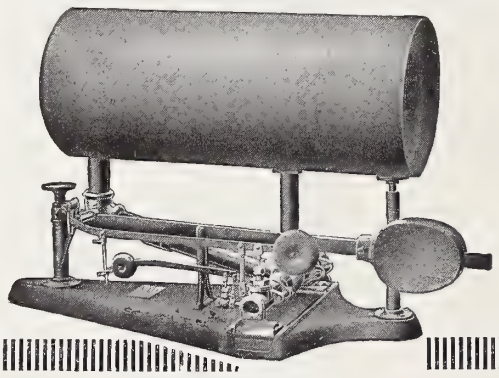
Morehead
Back to Boiler
SYSTEM

enables you to get full use of every one of these heat units. The Morehead System takes every ounce of condensed moisture from your steam lines and returns it to the boiler—without waste—automatically. The operation is 90% cheaper than a pump can do it—and the condensation is 100 to 150° hotter.

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Material Handling Plant has back of it 55 years of successful experience.

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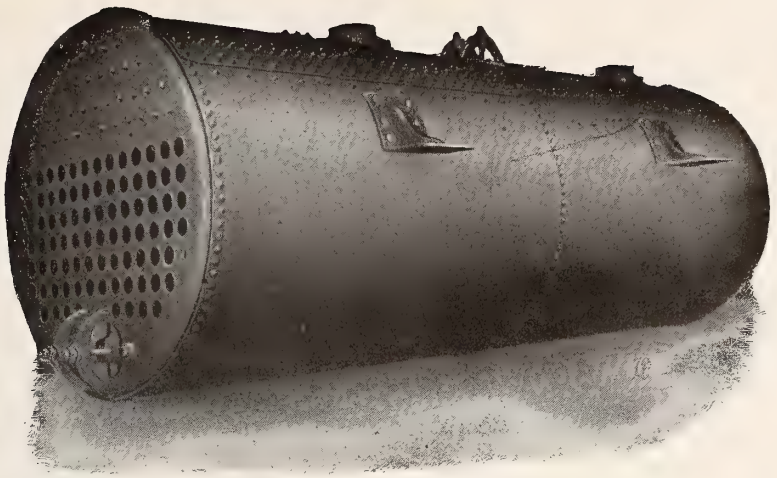
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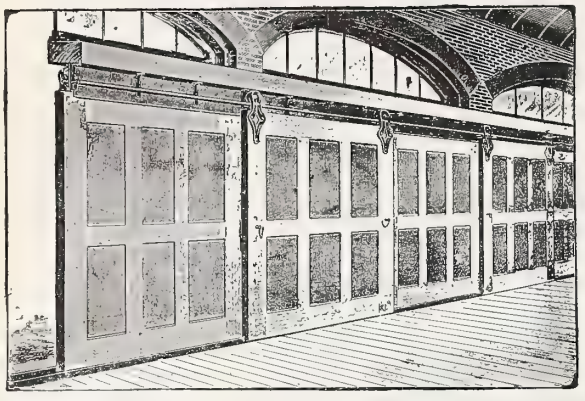
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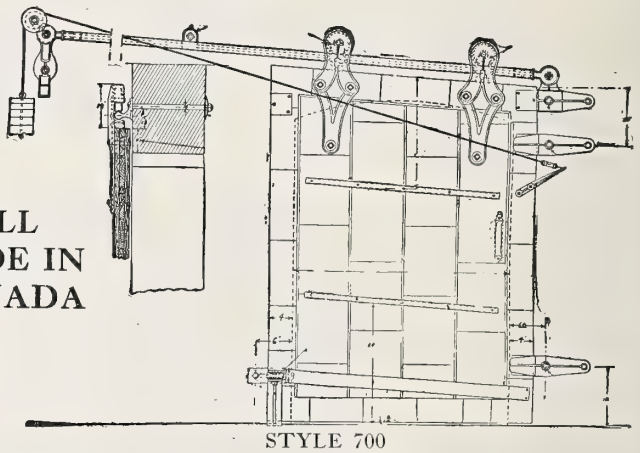
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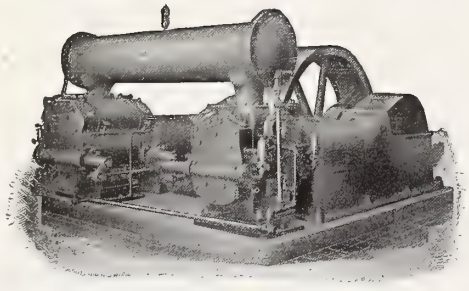
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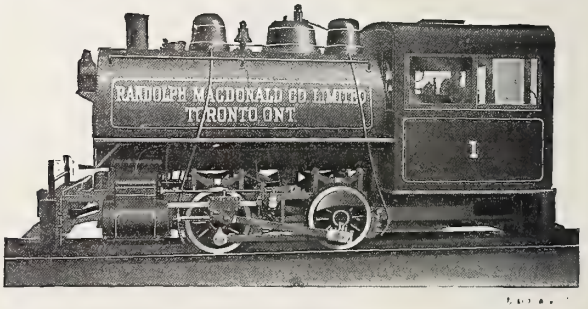
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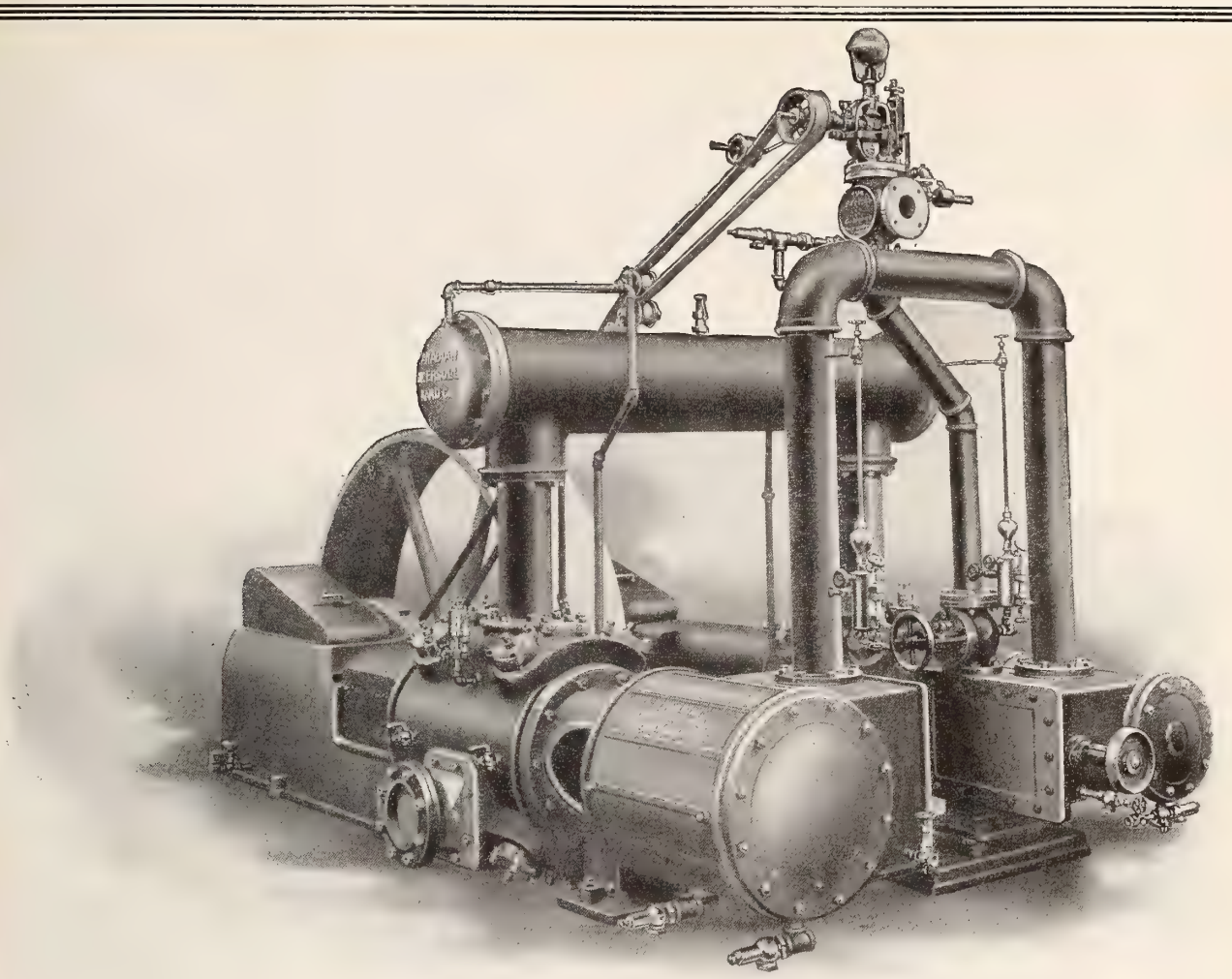


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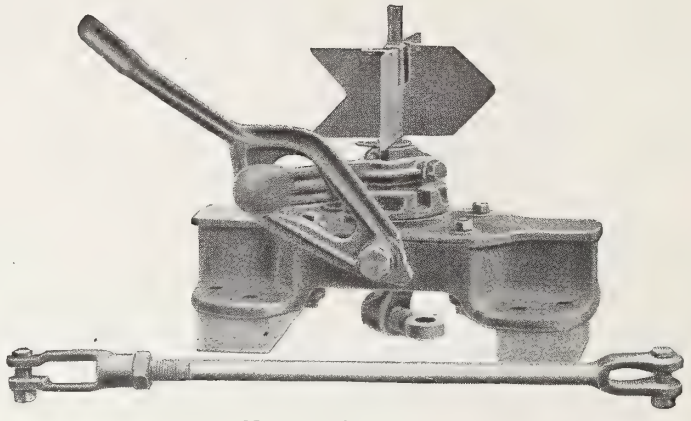
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RAMAPO Automatic Safety Switch Stands



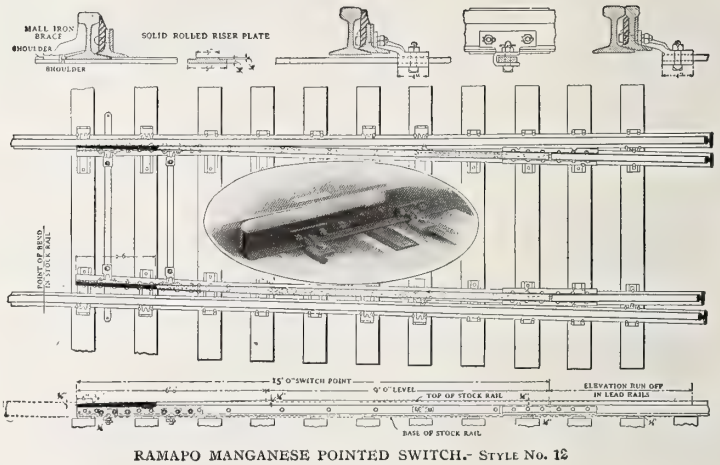
No. 20 Switch Stand

Railroads should use Ramapo Manganese Pointed Switch Style No. 12

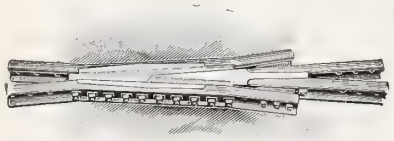
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Manganese Frog, Style No. 1

This Reinforced Manganese Frog will in Hard Service outwear all rail frog Four to Six Times.



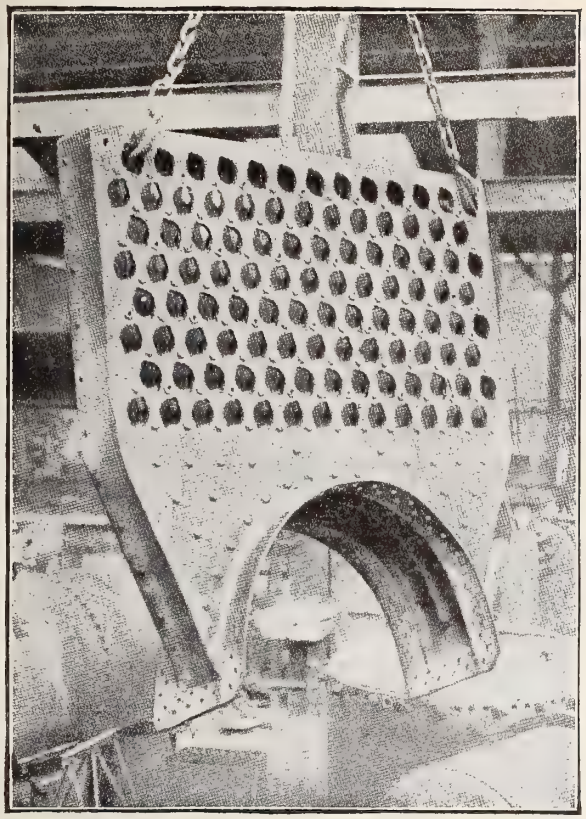
RAMAPO MANGANESE POINTED SWITCH.- STYLE No. 12



This is the RAMAPO MANGANESE POINTED SWITCH which will outwear SIX TO TEN ordinary all rail switch points. Try it somewhere in the hardest place you know of.

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Part of Water Tube Boiler Made by Oxy-Acetylene Welding.

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IF SO,—

Will you have us tell you what Oxy-Acetylene Welding and Cutting is doing for others ? We are the Pioneers of the Process and are in the best position to serve you : manufacturing in Canada, Oxygen and Dissolved Acetylene, Apparatus and Supplies requisite for the Process. Write to-day, your interest will be appreciated.

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We have had all the business we could do comfortably, for which we thank our many customers, and wish them

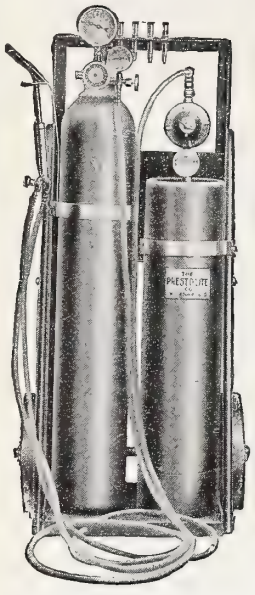
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Canada Carbide Company, Limited
MONTREAL - CANADA

Oxy-Acetylene Welding and Cutting

Investigate the Money-Saving Advantages of this Process



Oxy-Acetylene Welding Outfit employing Prest-O-Lite ready-made Acetylene and compressed Oxygen, both in portable cylinders.

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If you are interested in making your plant more profitable — in reducing operating costs and effecting many economies in production—if you wish to make your product stronger, neater, better—investigate what Prest-O-Lite Welding will accomplish for you.

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employs both gases (acetylene and oxygen) in portable cylinders. Prest-O-Lite Dissolved Acetylene is backed by Prest-O-Lite Service, which insures prompt exchange of full cylinders for empty ones. Provides dry purified gas, insuring better welds, quicker work and lower operating cost.

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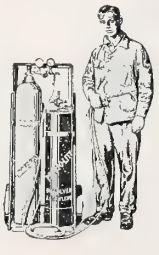
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Anhydrous Ammonia
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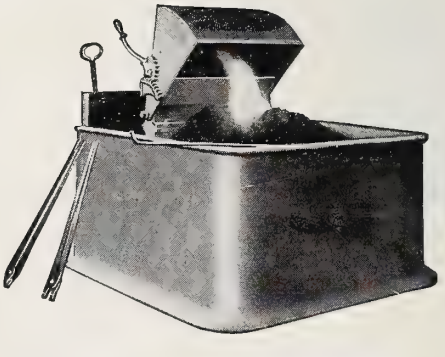
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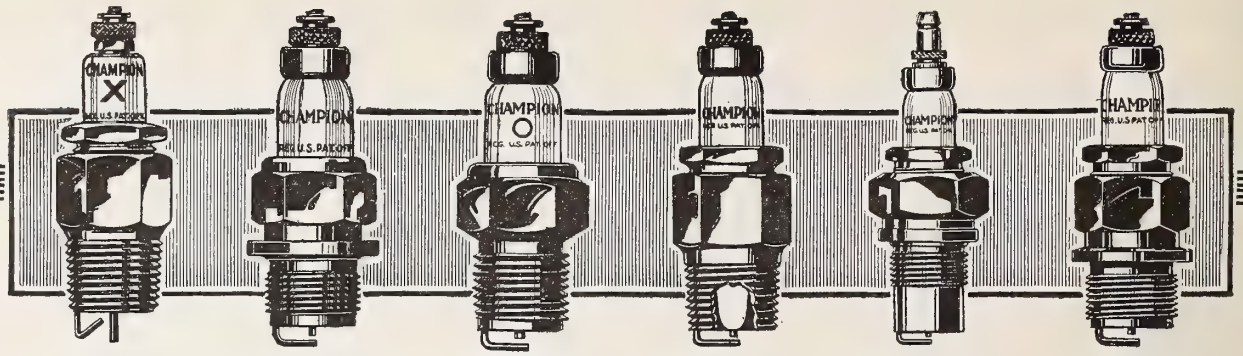
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Acadia Coal Company	4
Acadia Sugar Refining Company	2
Algoma Steel Corporation	1
Ames-Holden-McCready, Limited	3
Anglo-Canadian Leather Company	2
Bank of Hamilton	36
Belding-Paul-Corticelli, Limited	3
Berliner Gram-O-Phone Co.	1
Booth, J. R.	1
Canada Bread Company	6
Canada Cement Company	11
Canada Foundries and Forgings, Limited	3
Canada Furniture Manufacturers, Limited	11
Canada Machinery Corporation	5
Canada Malting Company	5
Canada Starch Company	2
Canada Steamship Lines	Various
Canadian Bank of Commerce	74
Canadian Car and Foundry Company	3
Canadian Consolidated Felt Company	1
Canadian Consolidated Rubber Company	10
Canadian Converters' Company	3
Canadian General Electric Company	9
Canadian Locomotive Company	1
Canadian Steel Foundries, Limited	2
Canadian Salt Company	2
Carriage Factories, Limited	4
Chicoutimi Pulp Company	2
Collingwood Shipbuilding Company	1
Corby, H., Distillery Company	1
Davidson, Thomas, Manufacturing Co.	1
Davies, William, Company	4
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Dominion Canners, Limited	62
Dominion Glass Company	5
Dom. Manufacturers, Limited (Caskets)	7
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Edwards, W. C., and Company	4
Frost & Wood Company	1
Goldie & McCulloch Company	2
Gordon, Ironside & Fares Company	10
Gutta Percha and Rubber Company	1
Hamilton Bridge Works	2
Harris Abattoir Company	1
Inglis, J., & Sons	1
Lake of the Woods Milling Company	66

	No. of Properties
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Lyall, Peter, & Sons Construction Co.	1
Macdonald Company, Limited, The A.	10
Maisonneuve, City of	Various
Manitoba Bridge and Iron Works	1
Maple Leaf Milling Company	8
Massey-Harris Company, Limited	1
Matthews-Blackwell, Limited	5
Matthews and Scott	3 fisheries
Merchants Bank	39
Monarch Knitting Company	4
Murray-Kay, Limited	2
McClary Mfg. Company	10
National Breweries, Limited	8
National Brick Company of Laprairie	1
National Iron Works, Limited	1
New Brunswick Telephone Company	Various
Nova Scotia Steel & Coal Co.	2
Ogilvie Flour Mills Company, Limited	4
Ontario Steel Products, Limited	3
Ontario Wind Engine and Pump Company	1
Page-Hersey I. T. & L. Co.	3
Pedlar People, Limited	1
Phoenix Bridge and Iron Works	1
Polson Iron Works	1
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Province of Manitoba	Various
Rat Portage Lumber Company Limited.	4
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Rolland Paper Company Limited	2
Royal Bank of Canada	58
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Union Bank of Canada	110
Union Lumber Company, Limited	39
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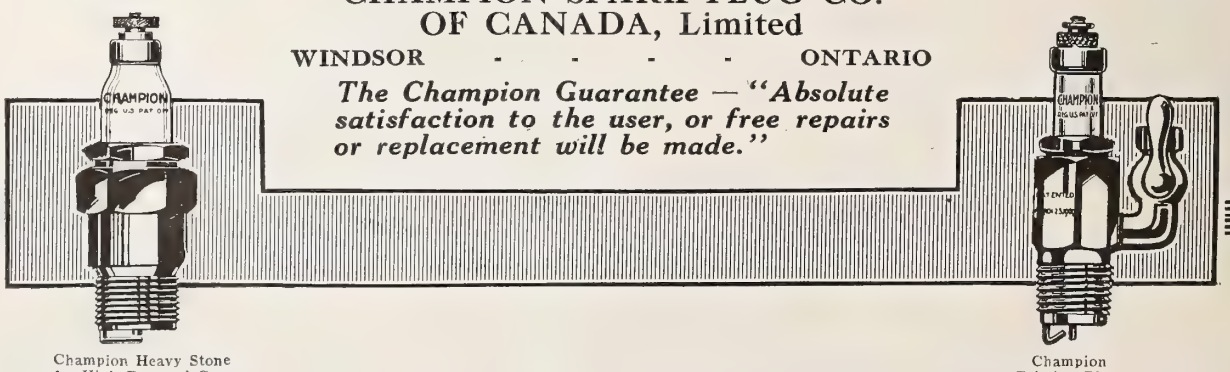
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Any auto supply dealer or garage can fill your order.

CHAMPION SPARK PLUG CO. OF CANADA, Limited

WINDSOR - - - - ONTARIO

The Champion Guarantee — "Absolute satisfaction to the user, or free repairs or replacement will be made."



Champion Heavy Stone for High Powered Cars Price $1.25

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STERLING QUALITY SAWS







Assurance of the best results, both economic and productive, is found in the constant use of **Atkins Sterling Quality Saws.**

Steel of exceptional quality — that never varies — and the best workmanship has perfected these universally used saws.



Are your results as good as they should be? Try **Atkins Saws** and watch the improvement.

Send for our "C.L." Catalog containing items of interest to you.

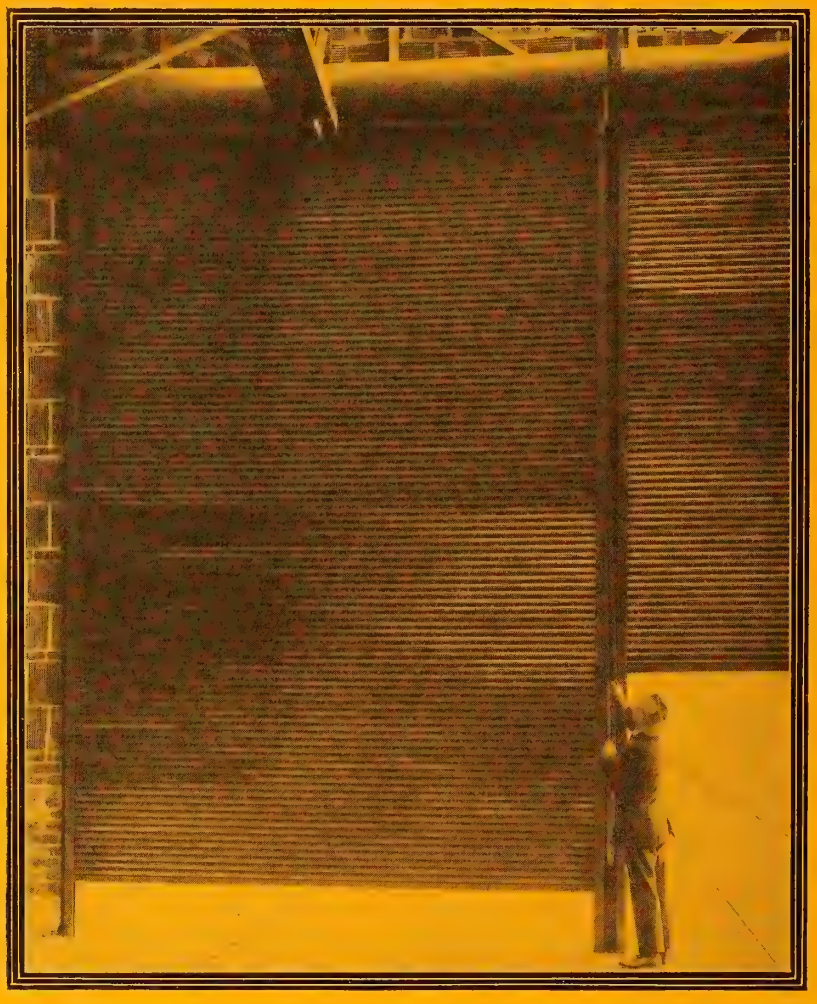


E. C. ATKINS & CO., Inc.

Established 1857

MAKERS OF STERLING QUALITY SAWS

Factory : Hamilton, Ont. *Vancouver Branch : 109 Powell Street*



Extra Large Doors on the Civic Car Barns (St. Clair division). Trolley wires present a problem which was overcome by an automatic device of our own design.

Unusual Fire-Door Needs

As the photo shows, Ormsby Rolling Fire-Doors can be used as a fire barrier for unusual wall-openings. Huge as this door is, a very light pull on the chain raises or lowers it. Heavy springs counterbalance the load.

In many factories and warehouses, dangerous risks have been taken, and extra insurance premiums paid, because the wall-openings could not be closed with ordinary fire-doors.

If there are awkward wall-openings in your factory, and you are looking for protection that does not kill space, that can be used anywhere, that has the Fire Underwriters' approval, let us send you blue prints and full information about Ormsby Rolling Steel Doors.

A. B. ORMSBY & CO., LIMITED, TORONTO, ONT.

Agents:—F. A. Gillis Co., Limited, Halifax, N.S. J. R. Bell, St. John, N.B. M. J. Skelly, Ottawa, Ont.
D. A. Cummings, Brockville. A. T. Chalmers, Vancouver.

Factories at Preston, Toronto, Montreal, Saskatoon, Calgary, Winnipeg

ASSOCIATED WITH THE METAL SHINGLE & SIDING CO., LIMITED

Ormsby

"QUALITY FIRST"

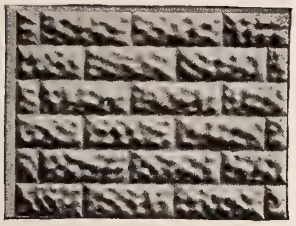
GALVANIZED METALLIC SPANISH TILES

Made 12 tiles to a sheet.
Easily and quickly laid.



THE ROOFING OF DISTINCTION

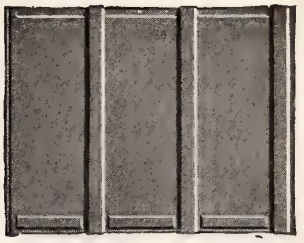
We supply Starters, Ridge Cap, Hip Cap, Terminals, etc.



Metallic Rock-Faced Brick Siding
An attractive, fireproof and permanent siding material for houses and other buildings.



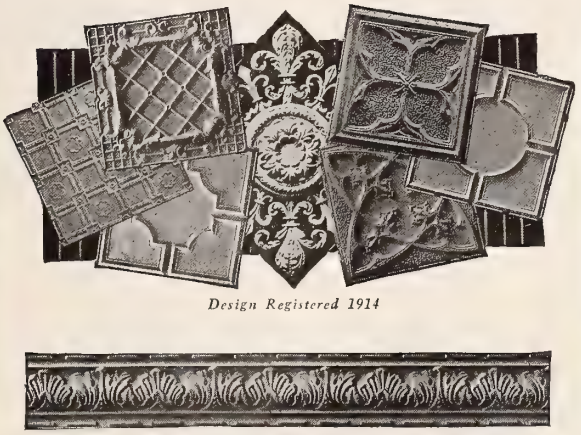
"Eastlake" Metallic Shingles
Famous for over 30 years as a fireproof, durable and watertight roofing.



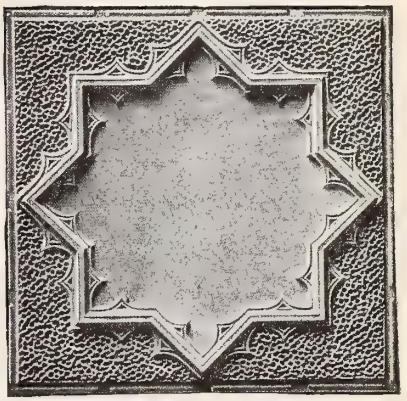
Metallic "Manitoba" Siding
Neat, fireproof and serviceable, not affected by settling of building. Specially adapted for grain elevators and similar buildings.



Ceiling Plate 537



Cornice No. 318



Ceiling Plate 511

Metallic Ceilings and Walls

Hundreds of designs, architecturally correct, clearly embossed, accurate fitting Large range of Cornices, Mouldings, and all necessary sundries. Complete catalogue and price list gladly sent on request

SHEET METAL BUILDING MATERIALS OF ALL KINDS

The Metallic Roofing Co., Limited

Cable Address
"Metallic, Toronto"

MANUFACTURERS

Established
1885

Toronto, Canada

PEDLAR'S "PERFECT" SHEET-METAL PRODUCTS

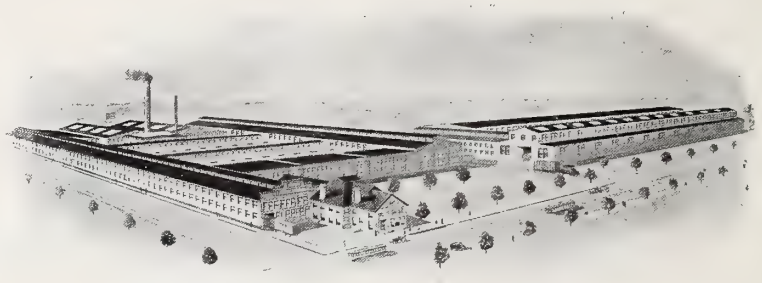
A COMPLETE range of sheet metal products, steel shingles, siding, ceilings, wall coverings, culverts, drains, flumes and an extensive selection of standard materials for every form of concrete construction.

Sheet Metal Stampings

We are making a specialty of sheet metal stamping work of various kinds, our large plant being splendidly equipped for this service. Our processes include the Pressing, Stamping, Punching, Blanking and Forming of

Automobile Parts, Electrical Equipment, etc.

Our customers testify to the satisfactory service we are giving. Let us estimate on your requirements.



Quality That Never Varies

Write for Descriptive Booklets

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PEDLAR'S METAL ROOFINGS

Roof your buildings with metal, and you will have the greatest durability and fire protection. Pedlar's Metal Roofings are the standard of quality—and there is a special line for every purpose.

PEDLAR'S FERRO-DOVETAIL PLATES

Steel Plates formed into a series of lateral corrugations, dovetailed in shape, forming a permanent key for plaster or cement. Very extensively used for concrete, "acid-proof" roofs and floors. Ask your architect!

PEDLAR'S "PERFECT" PORTABLE STEEL BUILDINGS

Don't be cramped for space. Use quickly erected steel buildings to provide for expansion. Especially adapted for tool-houses, storage sheds, stables, garages, etc., for either temporary or permanent use. Supplied "ready-to-erect" or to special measurements.

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This door is made in several styles, all of which embody the same fire-resisting principle, namely, cross-laid sheets of galvanized steel with an asbestos lining. Approved by the Fire Underwriters and extensively used on modern buildings.

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Provide your employees with plenty of daylight—it results in greater contentment and increased production. Pedlar skylights are of standard design, supplied all ready for placing in position—glazed or unglazed as desired.

PEDLAR'S "Perfect" VENTILATORS

Keep the air of your plant purified by the use of Pedlar's "Perfect" Automatic Ventilators. Especially designed for permanence. Both stationary and revolving types. Our ventilator book will interest you. Write for a copy.

ALSO ELECTRO-GALVANIZING

Write Us for Particulars on This Work

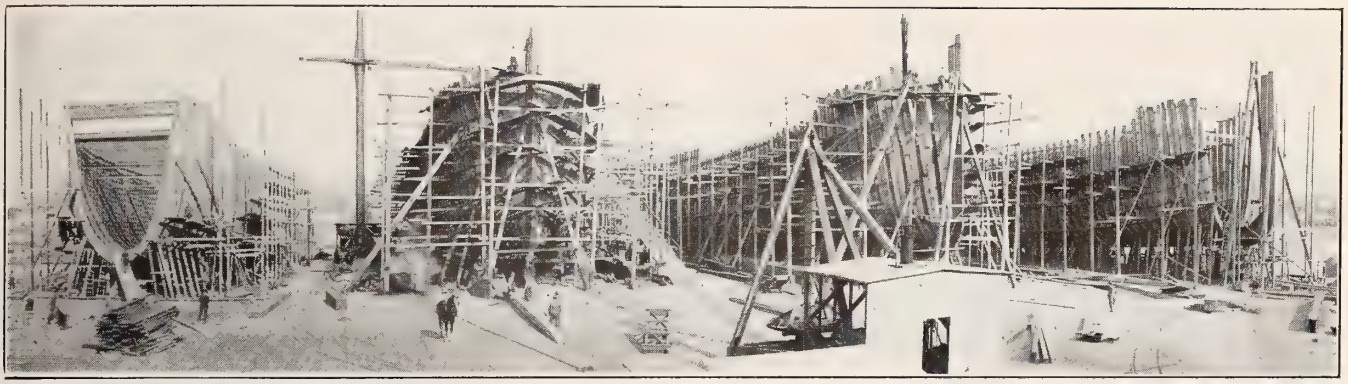
The Pedlar People Limited

Established 1861

EXECUTIVE OFFICE AND FACTORIES: OSHAWA, ONT.

Branches: Montreal, Ottawa, Toronto, London, Winnipeg, Vancouver





THE illustrations show two views of our shipyard. We are publishing these to demonstrate our ability to do rapid construction, regardless of the class of work involved.

The photographs were taken at an interval of less than three months, and, we believe, speak well for the organization that could make such a showing.

The same organization that is behind this, is at the disposal of all our clients; and if the work involves Water Power Development, Power Houses, Industrial Plants, Intakes, Tunnels, Bridges, Foundations, Mine Shafts, or special problems, we have the plant and equipment to do the work expeditiously and economically.

The Foundation Company

LIMITED

Engineers, Contractors **Montreal, Winnipeg**

One of many large Western installations of

Truscon Steel Sash



The Robert Simpson Co., Limited, Regina

The owners of this building secured maximum daylight—fireproofness—ventilation—satisfaction.

The day of wood sash is past. It is short-lived; daylight is shut out by its wide members; it does not permit of more than 50 per cent. ventilation, and, in case of fire, spreads the flames instead of retarding them. Truscon Steel Sash is made to suit any size or shape of opening in any size or style of building and with any required type or area of ventilation. It is recommended especially for use in Factories, Power-Houses, Warehouses, etc.

Let us figure with you on the use of Truscon Steel Sash in your next job.

TRUSSED CONCRETE STEEL CO. of Canada, Limited

WALKERVILLE . . ONTARIO

MONTREAL TORONTO WINNIPEG



DURING the past seven years our men have worked without interruption winter and summer for the Ford Motor Company of Canada, Limited, at Ford, Ontario. We have had many new and difficult problems to solve. The photograph above shows a reinforced concrete building 70' x 700' in course of construction. This building was built in water from 15 to 20 feet in depth. There was also 840 feet of concrete wall to be built. This also was carried down from 15 to 20 feet below water. The entire structure is carried on piles. These problems have all been solved successfully and economically.

We would be pleased to solve your building problems.

WELLS & GRAY, Limited

Engineers and Contractors

248 Confederation Life Building TORONTO, ONTARIO

Branch Office : Bank of Commerce Building, Windsor, Ontario

John V. Gray Construction Co., Ltd.

GENERAL CONTRACTORS

625 Confederation Life Bldg.
TORONTO, ONT.

Repeat Contracts, 1917

Swift Canadian Co., Ltd., Toronto
Gunns Limited, Toronto
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Canadian Fairbanks Morse Co., Ltd., Toronto
International Harvester Co., Ltd., Chatham

Our Aim—Satisfactory Service.

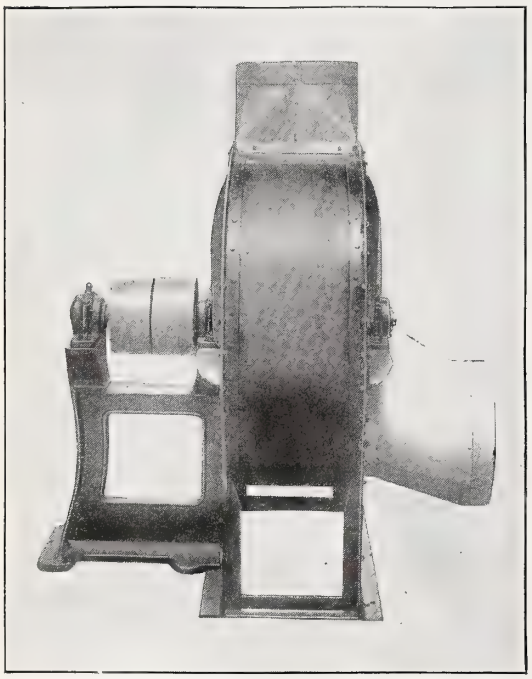
"The Fan That Cannot Clog!"

The "FOSTER" Fan

PATENTED

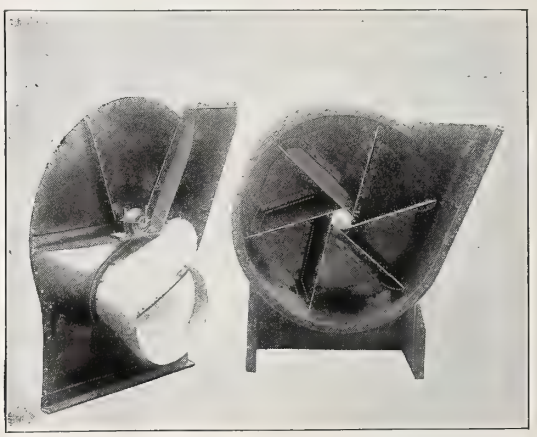
(Only Non-Centre Suction Fan in Existence)

Equip your blower system with "Foster" Fans and all your blower troubles vanish, because instead of a centre circular inlet the "Foster" has a segmental opening to the rear, immediately adjacent to the discharge duct. The "Foster" handles every conceivable kind of material, wet or dry, without clogging. This is due to the fan wheel being so constructed that the material entering the fan is immediately discharged without passing through or around the wheel. We have expert mechanics to install the system, thus always ensuring a completely satisfactory job.



Showing end view and S. K. F. bearings of 35-inch Blower and Exhauster, equipped with tight and loose special ball-bearing pulleys

Write for Illustrated Folder describing fully its design and operation



Side view of 35-inch Blower, with front side removed, showing Fan Wheel in position.

Toronto Blower Co., 156 Duke St., Toronto

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Manufacturers of Incandescent Mantles for Artificial and Natural Gas, Kerosene, Gasoline, Acetylene and Liquid Gas

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BATHURST
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"DRYDEN" KRAFT PULP

Extra Strong, Long, Pure Sulphate Fibre

DAILY CAPACITY 120,000 POUNDS

KRAFT WRAPPING SHEATHING PAPERS

DAILY CAPACITY 45,000 POUNDS

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J. B. BEVERIDGE, General Manager DRYDEN, ONTARIO, CANADA

RAW DOLOMITE

FOR

Blast Furnace Open Hearth

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High-Class Fir Doors, Finish, Turned Posts, etc.

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(All sizes, both creosoted and natural)

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The most modern plant in Canada produces these brick, which lead in color, strength, uniformity and durability.

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There are definite qualifications required when

BUILDING

Whether it be School, Office Building or Home

SPECIFY

Interprovincial Pressed Brick

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Quality, Service Pleasing Appearance

Interprovincial Brick Co. of Canada, Limited
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Established 1873

LAPIDOLITH MEANS Economy Stone Efficiency

There is no more reason for letting your Concrete Floors and Tanks go without this chemical hardener than for letting wooden walls deteriorate without paint—***just flush it on.*** LAPIDOLITH will save all cost of repairs, and it will save delays caused by repairs, because it will make your floors withstand the wear and tear of continual walking and trucking. Will prevent that concrete dust so ruinous to machinery and merchandise, so menacing to your health and that of your employees.

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Salt Glazed, Vitrified Sewer and Culvert Pipes

4 inch to 30 inch

Square and Round Flue Linings, Inverts, Building Blocks

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And All Shapes in Fire Clay

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Manufacturers

THREE AND FIVE PLY

Veneered PANELS

FOR ALL PURPOSES

In Plain and Figured Woods

Sewing Machine Woodwork and Other Specialties

Hay & Company

LIMITED

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Anticipate your needs in



Set and Cap Screws,

Semi-Finished Nuts and Twist Drills.



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Consumers in buying from Jobbers will please specify always "MORROW" make, and in this way assure yourselves of the very highest grade in the above lines which can be secured.

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Morrow Drills Excel in Efficiency. Morrow Drills are Made in Canada.

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Fibre Cans and Fibre Body Cans with Metal Ends

For All Sorts of Dry Products

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FLAWLESS

In Design and Workmanship

All Parts Standardized

QUATURN
TRADE MARK

We are now manufacturing in Canada the celebrated "Quaturn" plumbing fixtures. These fixtures embody the most notable structural improvements seen in a decade, as all parts are standardized and renewable. "Quaturn" Fixtures thus possess unusual merit not only in beauty of design and finish but also in the more important factor of practical utility and durability.

The Standardized Structures and Uniform Renewable Seats of the "Quaturn" Line Reduce the High Cost of Plumbing Maintenance

For instance: when metal wears from the seat of an ordinary faucet the whole fixture is rendered useless. But, in "Quaturn" faucets, the ***Phosphor Bronze Seat*** receives ***all*** the friction wear and can be quickly and economically replaced. And, in closing the ***washer*** of the "Quaturn" ***moves up to the seat*** with the pressure, thus aiding the shutoff instead of resisting the pressure as in ordinary compression faucets. Closing with the pressure prevents automatic opening under high water pressure.

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STANDARD MACHINE SCREWS

Round, Flat, Fillister, Binding and Button Head

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Belt Rivets, Boat Rivets, Flat and Round Head

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When in need of supplies for the various departments of your plant, give us an opportunity to quote on our specialties.

Let us send you our catalog showing all lines.

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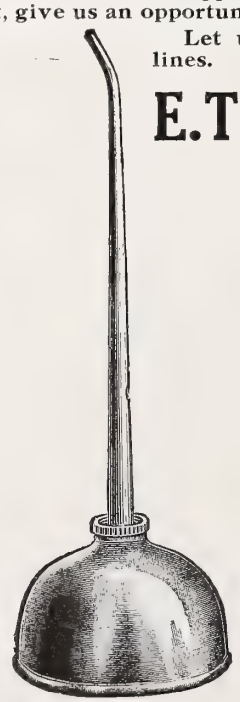
Fire Pails



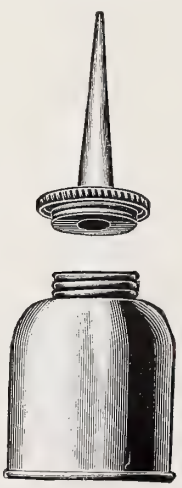
Fire Buckets



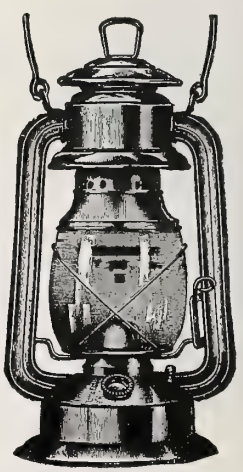
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Coppered Machine Oilers



Mowing Machine Oilers



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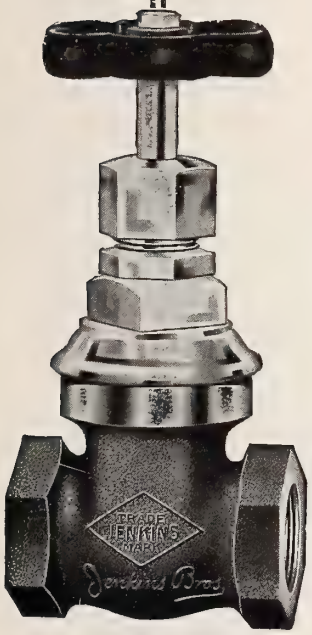
Jenkins Bros.

Jenkins Bros.'

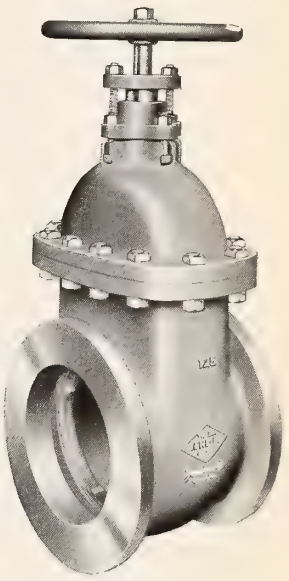
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Gate Valves

have proved to be the most efficient of all



TYPE "K"
Brass Gate Valve Screwed
Fig. 300



TYPE "K"
Iron Body Inside Screw Gate
Valve Flanged
Fig. 402

They conform to a standard specification which assures high-grade valves that will meet every requirement, essential for permanent service under severe conditions

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It will be the happiest and most prosperous year you've ever had

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Deloro Smelting & Refining Co., Ltd.

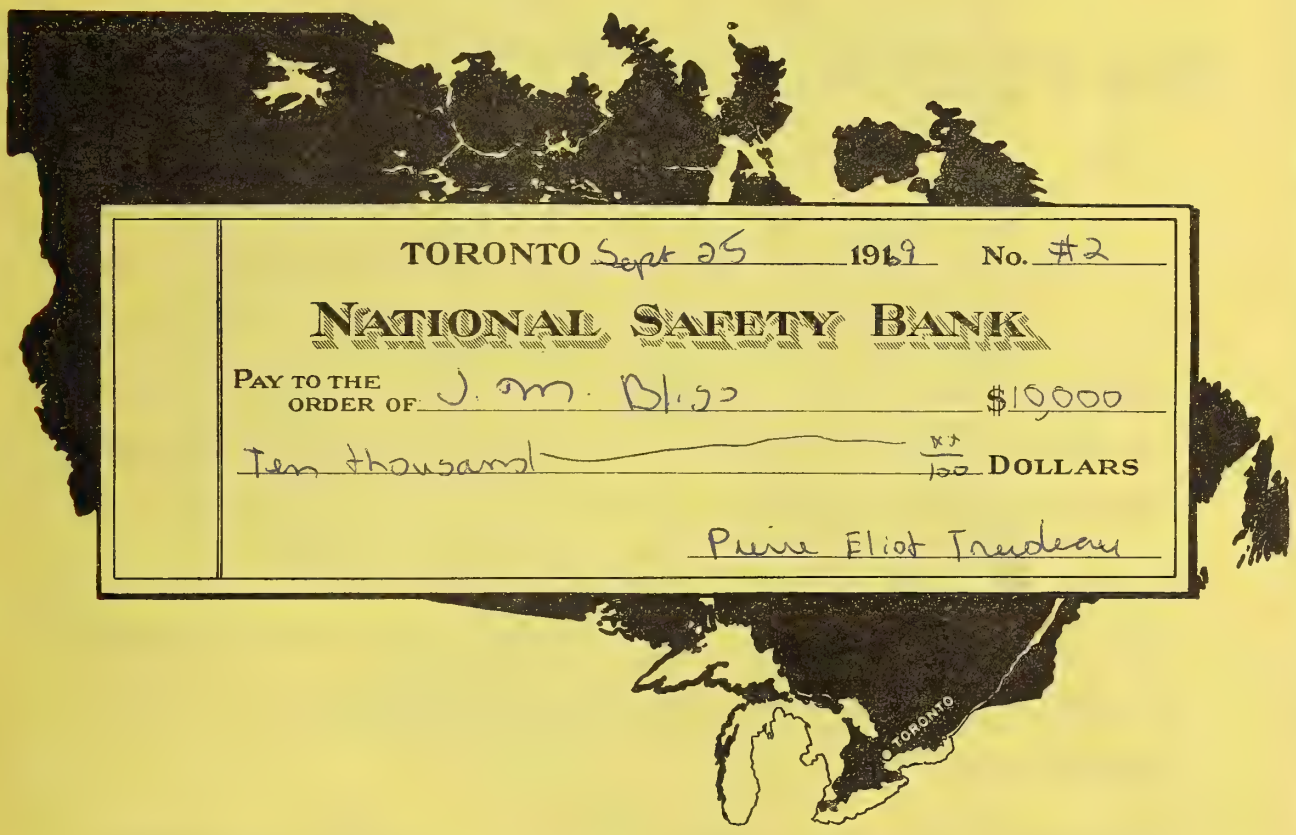
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NATIONAL SAFETY PAPER protects every part of a check—amount, payee, date, endorsements—against either chemical or mechanical alterations.

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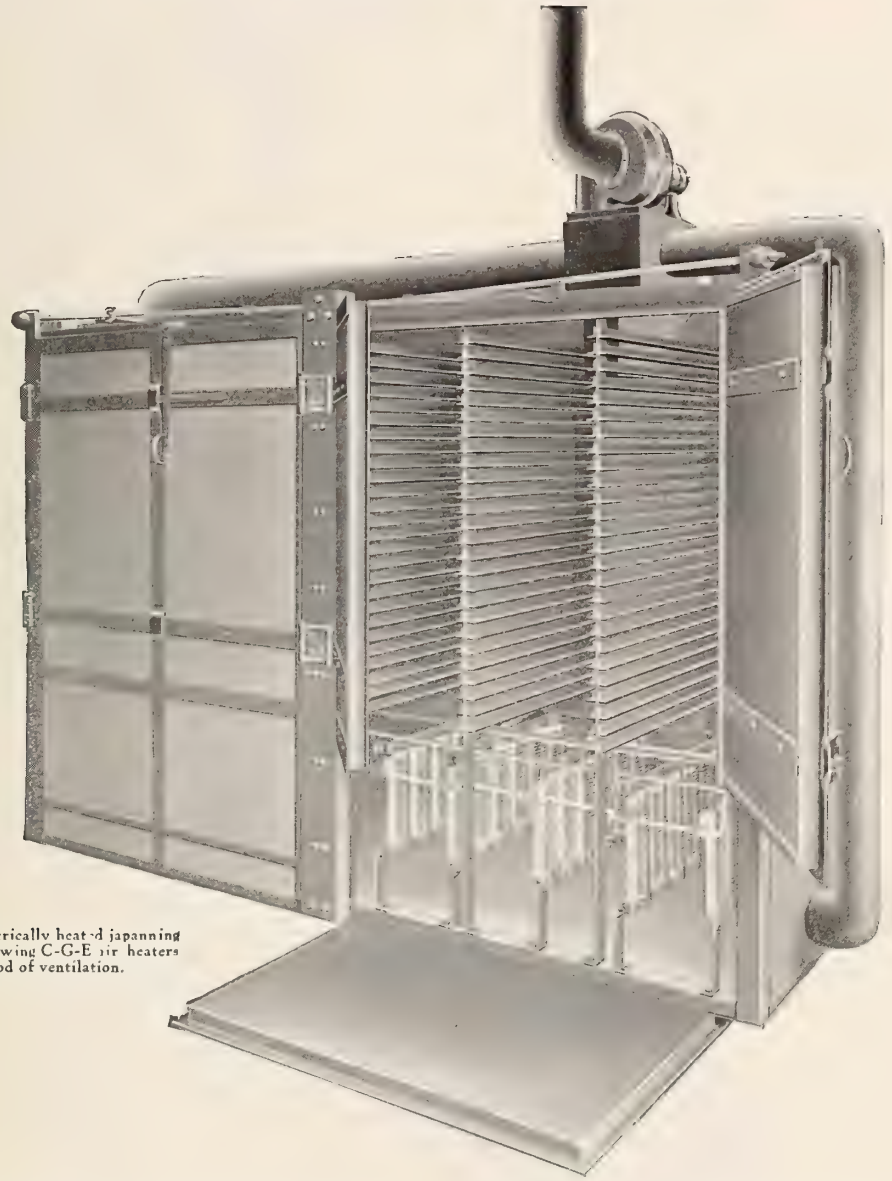
There is nothing to "forget to do" and nothing "to get out of order". The protection is the same in every part of the check—amount, payee, date, endorsements.

National Safety Paper ensures the efficient transfer of money by check.

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INDUSTRIAL HEATING
BY ELECTRICITY



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The Canadian General Electric Company offers a line of industrial heating equipment suitable for every phase of the industrial world where relatively high temperatures are required, or where exact control of those temperatures is, above all other things, necessary.

The resistor material in C-G-E heaters is capable of enduring a continuous heat of 800° C (1472° F). It is carried on insulating material which maintains its insulating qualities at 1000° C (1832° F) with no expansion or contraction.

Central Stations which have investigated and developed electric heating installations on their line are assured of a continuous and profitable load.

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For Strength
And Durability

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HAVE NO EQUAL

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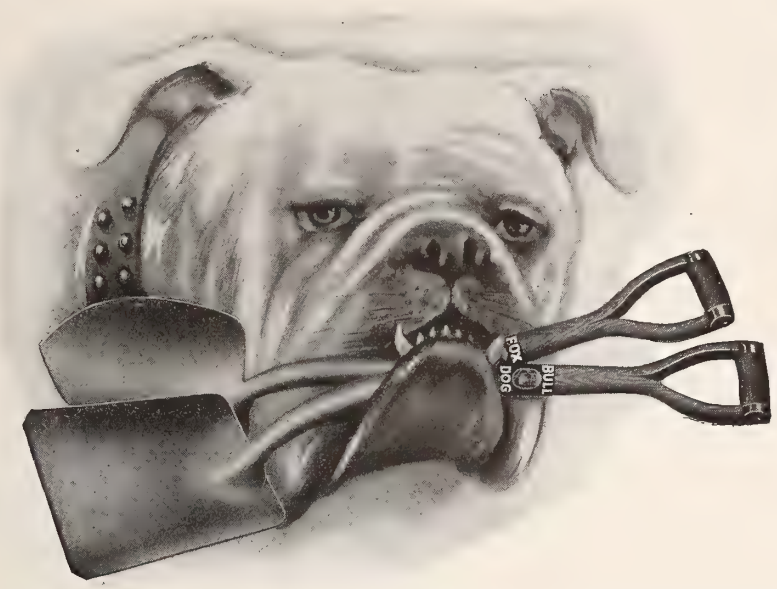
SOLID SHANK
BULL DOG
AND FOX

SCOOPS
MOOSE AND
BLACK CAT

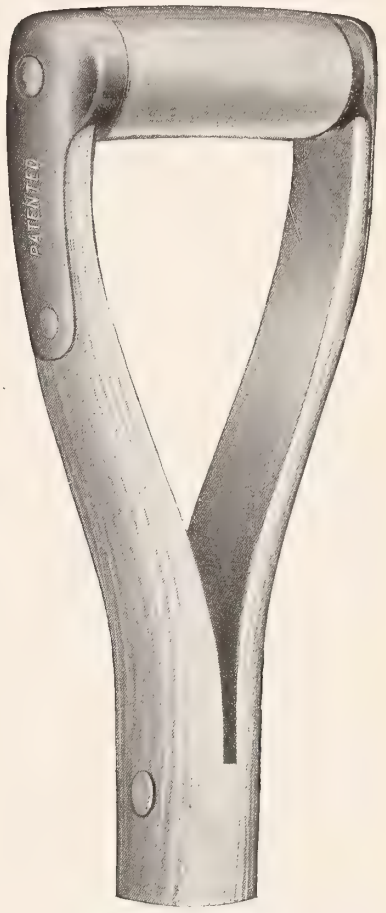
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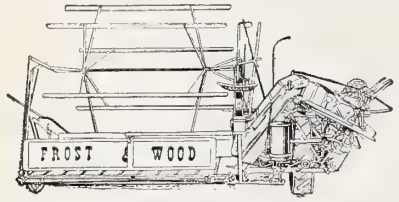
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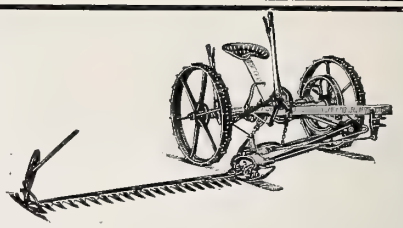


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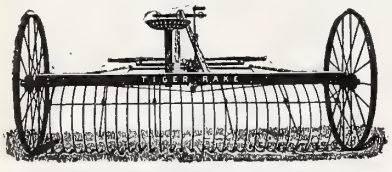
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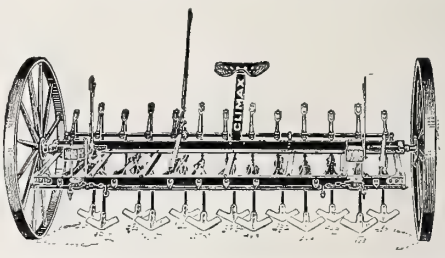


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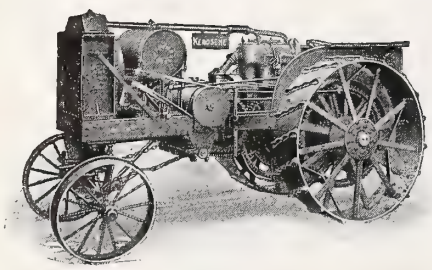
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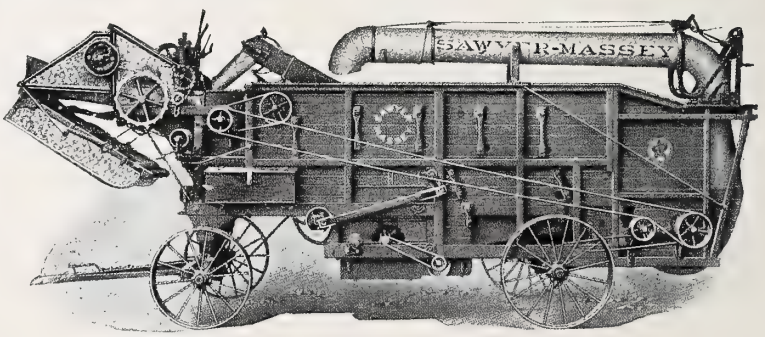
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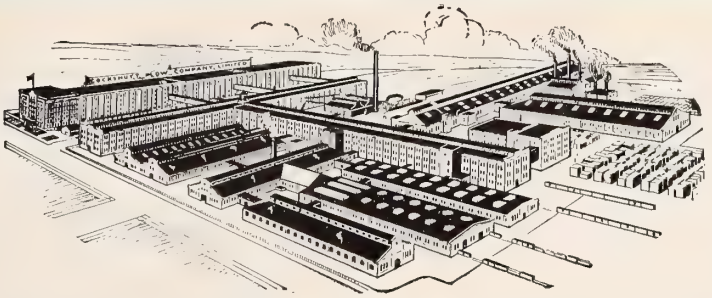
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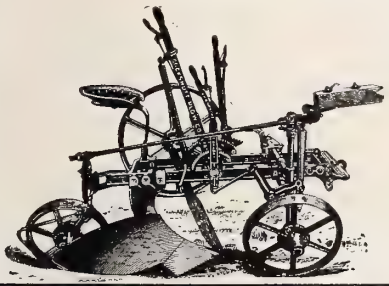
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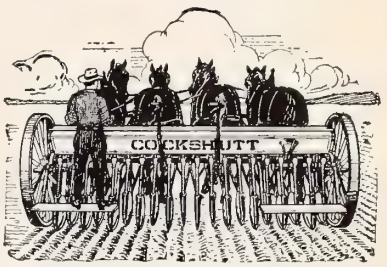
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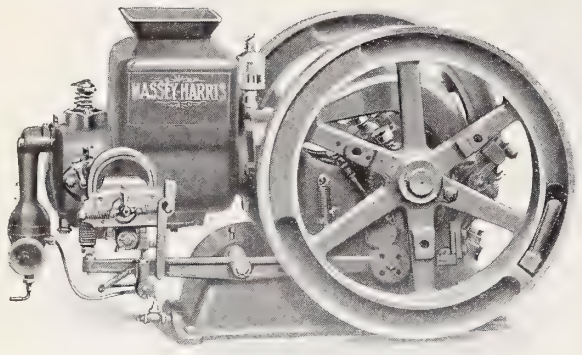
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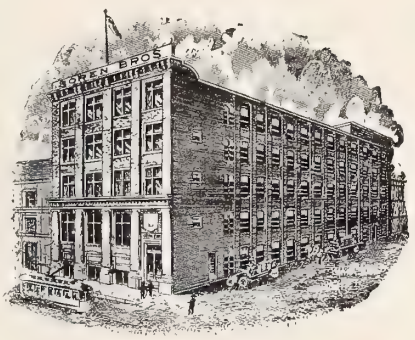
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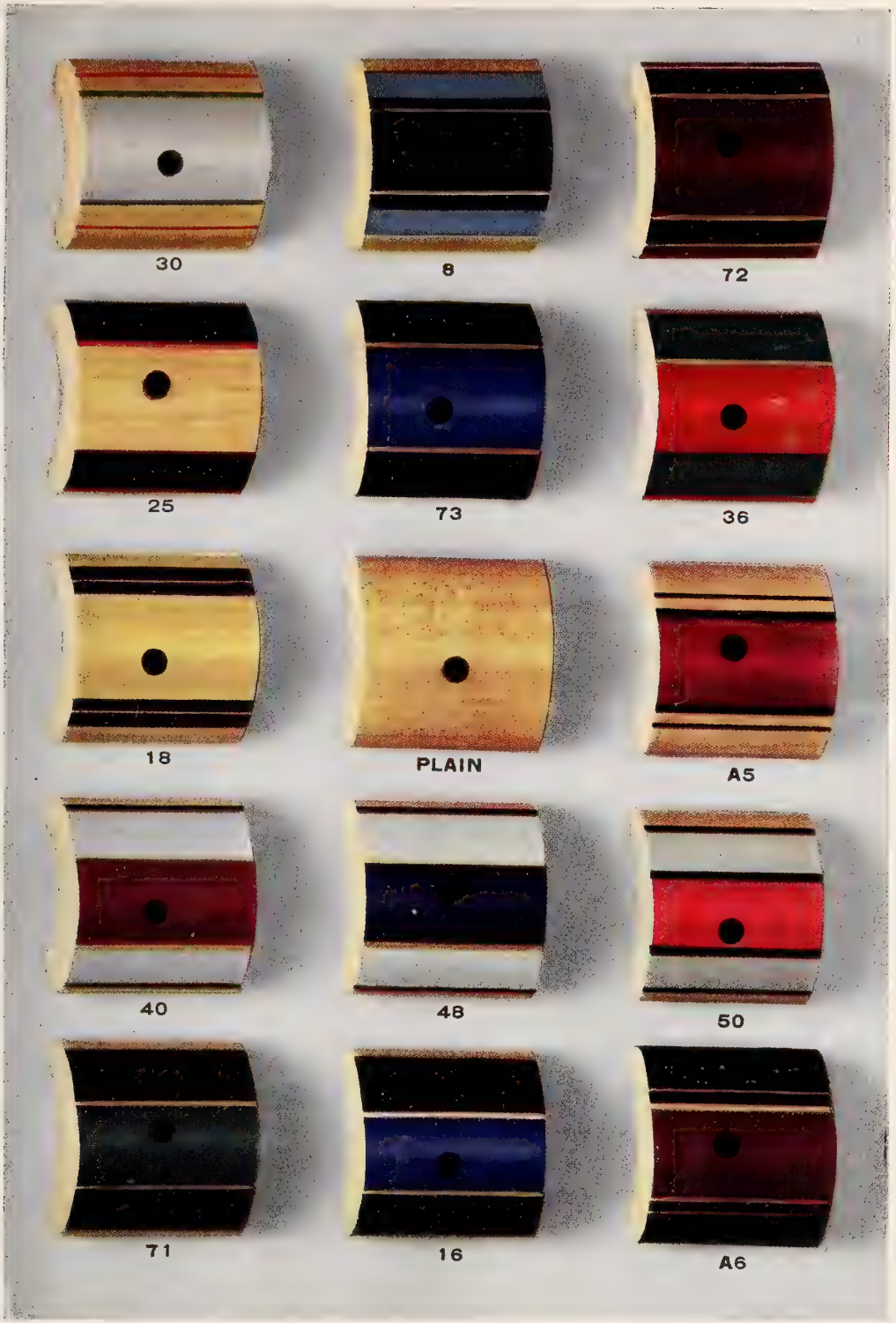
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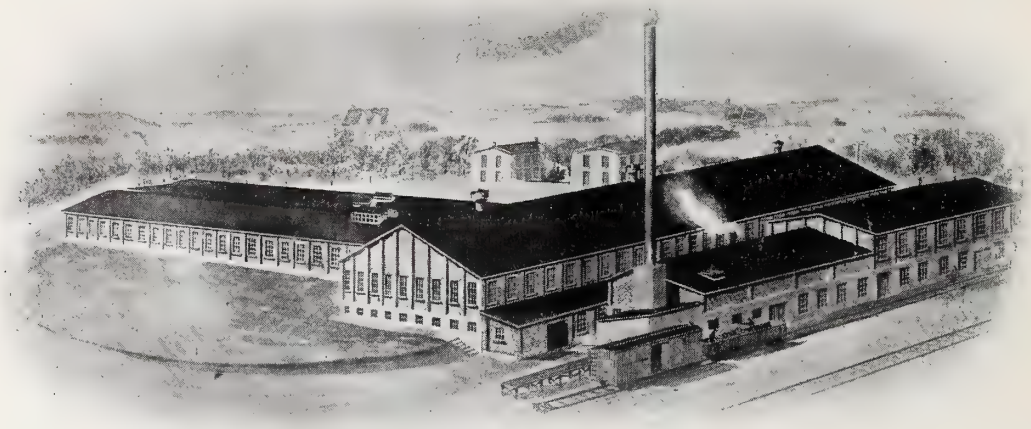


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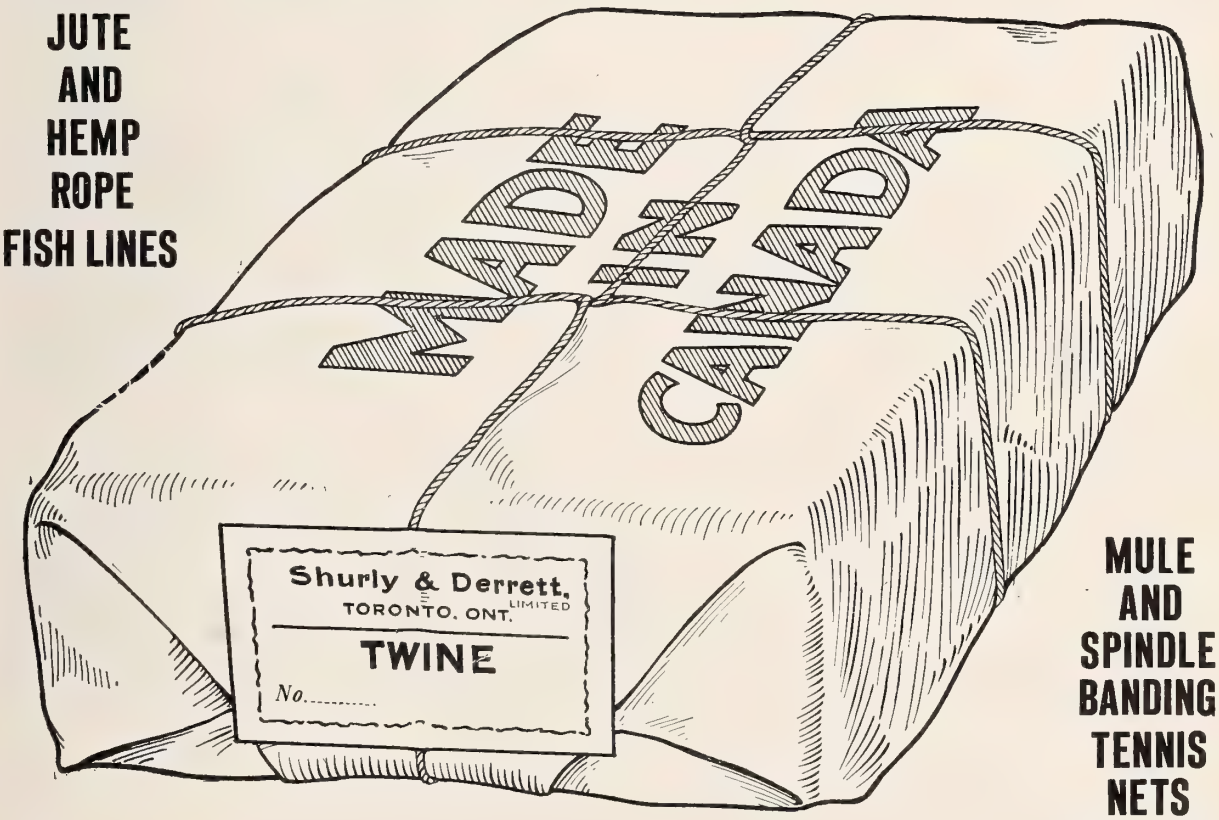
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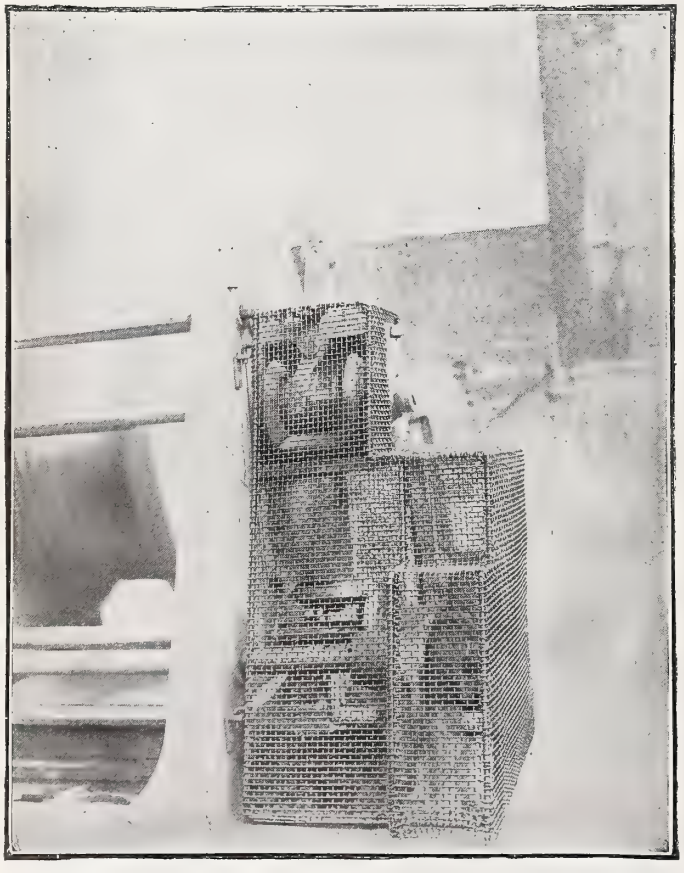
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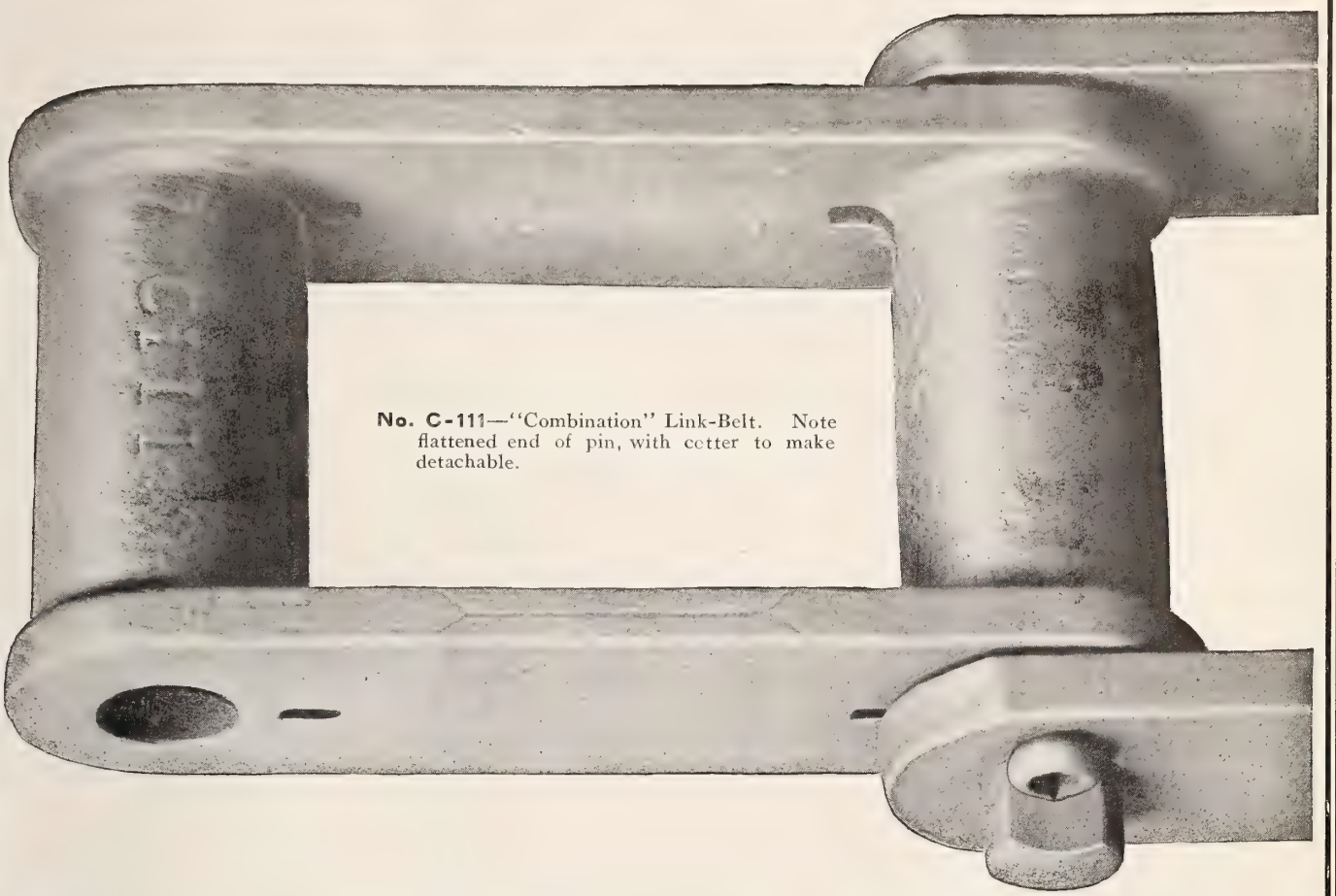
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1. A pin accurately fitted to the side bars. We use a flat portion milled accurately on the end of the pin, fitting into a carefully broached hole in the side bar. Other makers depend upon forged lugs or forged necks under the head to hold the pin in place. These cannot be made accurate enough to prevent a certain amount of looseness. When the pin gets loose, it cuts into the side bar, the pitch elongates, and the links are ready for the scrap pile.

Length of life in service is increased by preventing motion between the pin and the steel side bars which hold it.

2. Pins and Side Bars made of steel having 75,000 to 80,000 pounds tensile strength per square inch, a hard, tough, durable grade of stock. Pins rolled smooth after forging (as the other types of pins cannot be). The rolling compresses and trues up the original hard scale surface.

3. Cast centre links made of best grade of malleable iron for durability and strength.

4. Pin holes in heads of links cored smooth and clean by a special process of manufacture, and forming with the rigidly held, smooth, hard pins, an excellent joint for durability.

5. Accurate pitch and small clearances, furnished by accurately made patterns and dies. This preserves the accuracy of fit between wheels and Link-Belt, and makes both more durable.

6. Close-fitting joints which keep out gritty material that might otherwise work in and cause rapid wear in many classes of work.

The pins are usually provided with cotters, making the "Combination" Link-Belt detachable. Riveted "Combination" Link-Belt can be furnished if desired.

In our Revised Price Book No. 275-B, a complete line of wheels is listed for the various sizes of "C" Class "Combination" Link-Belt, and they **fit properly,** not merely "approximately," because they are not make-shift accommodations to a rough, irregular, loose-jointed construction.

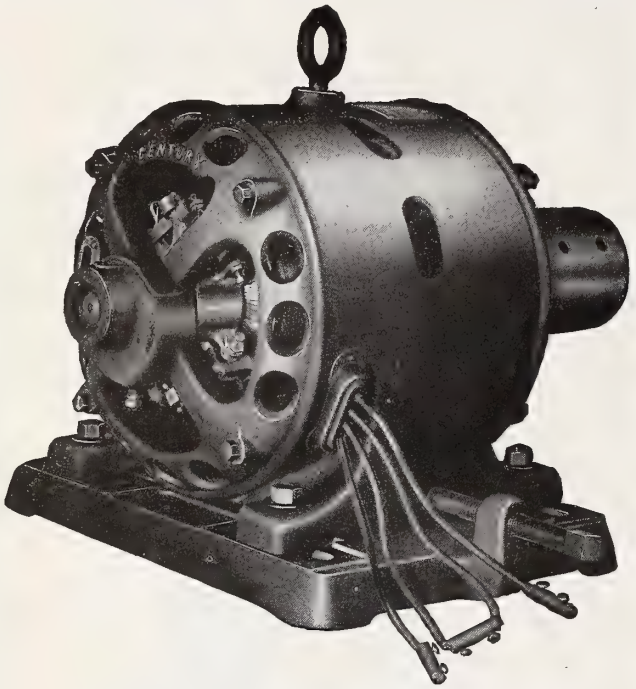
In general dimensions the "C" class links correspond with others on the market similarly numbered, and can be substituted without difficulty, on the same wheels, and with the same bolt holes for buckets.

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3	10	1120	220	2	Westinghouse	CCL
2	5	1120	220	2	Westinghouse	CCL
2	5	1720	220	2	Westinghouse	CCL
1	2	1720	220	2	Westinghouse	CCL
1	2	1720	any	2 or 3	Crocker Wheeler to be wound	
3	1	1720	any	2 or 3	Westinghouse to be wound	CCL
2	10	1120	any	3	Westinghouse with Star Delta switch	CCL
1	20	850	220	3	Westinghouse	CCL
2	10	1120	220	3	Westinghouse	CCL
1	5	1120	220	3	Westinghouse	CCL
1	5	1720	220	3	Westinghouse Rewound	CCL
1	3	1720	220	3	Westinghouse	C
1	5	1720	220	3	Westinghouse	C

25 Cycle Motors.

No.	H.P.	R.P.M.	Volts.	Phase.	Make.
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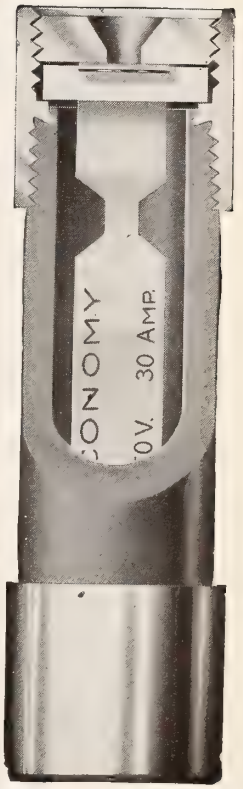
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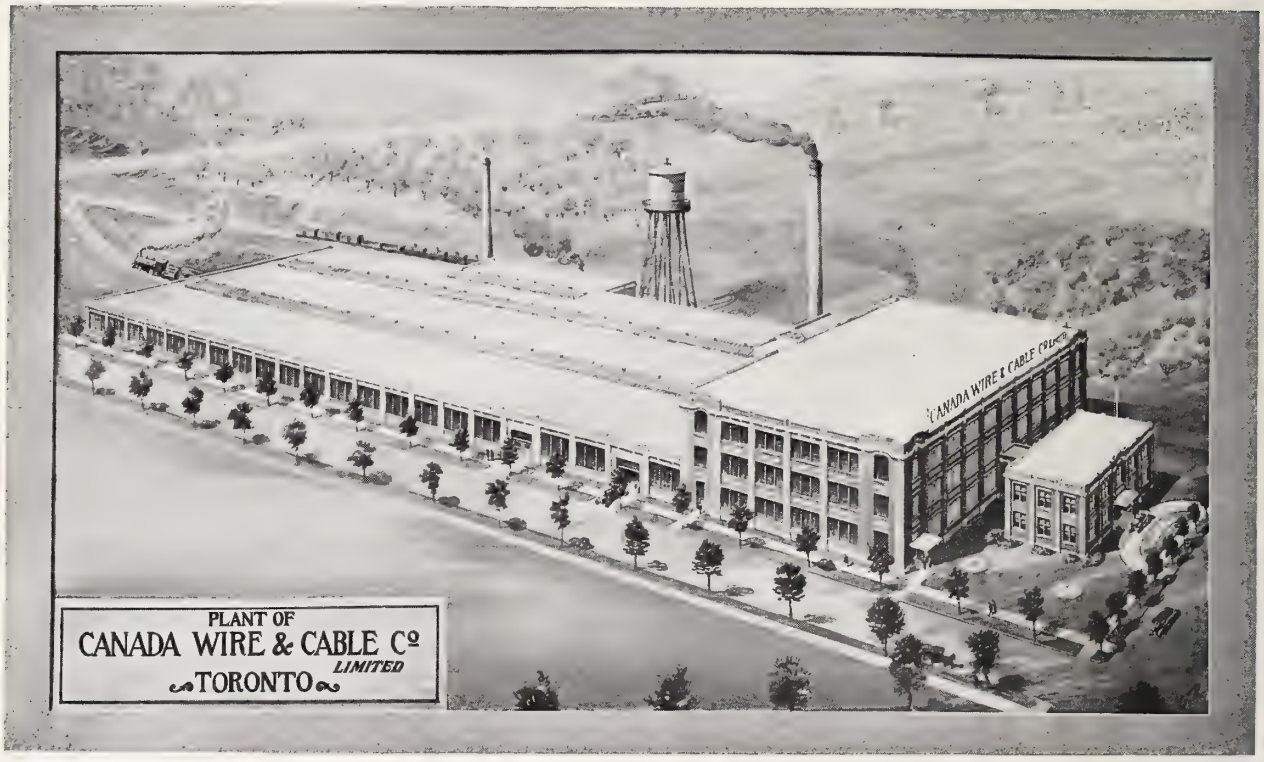


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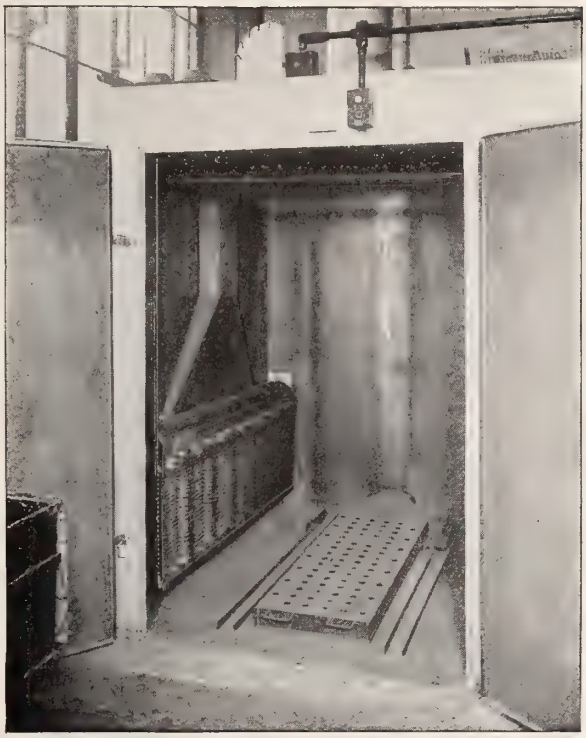
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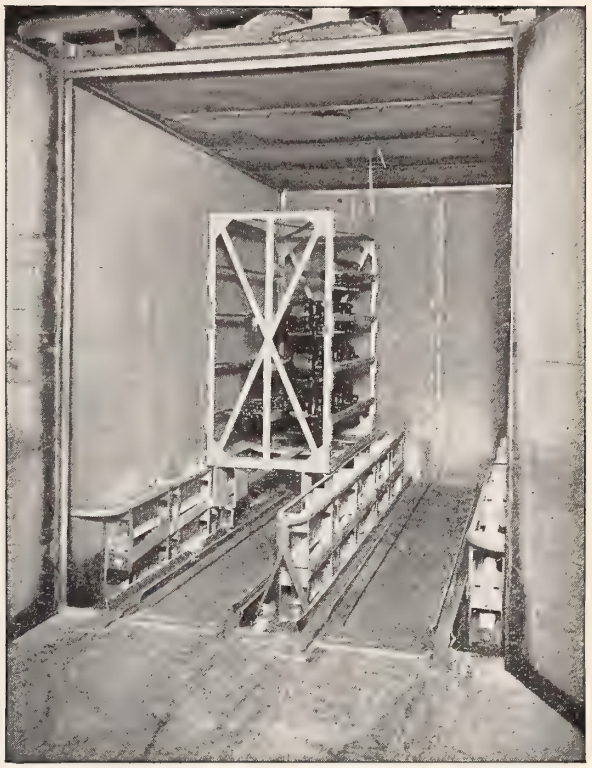


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INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

Vol. XVIII. TORONTO, JANUARY, 1918 No. 9

INDUSTRIAL CANADA

Issued monthly as the official publication of the Canadian Manufacturers Association (incorporated), and devoted to the advancement of the industrial and commercial prosperity of Canada.

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Anti-Incendiarism Laws in France.

APROPOS of the subject of personal liability for fire damage which is now receiving some attention, it is interesting to note that the French law makes the lessee of a rented building responsible for damage to the building unless he can prove that "The fire occurred by mere chance or by circumstances over which he had no control, or through a defect in the construction; or that the fire was communicated by a neighboring house." If there are several tenants, all are responsible for a fire, according to the rent value of the property which they may occupy, unless they can prove that the fire began in the dwelling of one of them, in which case he only is responsible, or when some tenants can prove that the fire could not have begun in the part occupied by them. Thus, instead of the owner of the damaged property having to prove negligence on the part of the tenant, the onus is placed on the tenant to prove that the fire was not actually caused through his negligence.

The French laws against incendiarism are much more severe than on this continent. Death is the penalty prescribed for setting fire to any building or place occupied for human habitation, the punishment being reduced to penal servitude for life if the building or place is not so occupied. Any person deliberately setting fire to his own property, so placed as to communicate the fire to his neighbor's property, receives the same punishment as though he had actually set fire to his neighbor's property, and, in case the fire causes the death of one or more persons who may be on the premises when the fire is started, the punishment is death. Incendiarism, in France, is practically classed under the same heading as murder or attempted murder. This is shown by Article 436, which provides that the threat of setting fire to or destroying by explosive property of any description, shall be punished with the same sentence as that for the threat of murder.

A National Duty.

NOT long since Canadians were being urged through one of the strongest advertising campaigns ever carried on in the Dominion, to invest every possible cent that they could spare in Victory bonds. The proposition was put up as a national obligation, something that would show the world that Canada was in earnest in her prosecution of the war. The country rose nobly to the occasion and subscribed nearly three times the sum of money set as the loan objective by the Finance Minister. Over 800,000 people applied for bonds, which, in proportion to population, was a world record.

The enthusiasm created by the campaign, with all its posters, its streamers, its brass bands and "stunts," is over some time since, and the more sober business of paying up is now in order. That part of the bargain is after all the more important, for the canvassing for subscribers was merely the means to an end—the end being the securing of the actual hard cash. Canadians, we feel sure, will do their part in fulfilling their contracts with the Government, and the Dominion treasury will be enriched to the extent of the four hundred millions of dollars subscribed, but there is yet another duty to perform.

Some financial authorities profess to see no harm in a falling market for Government securities, maintaining that, where capital is being steadily exhausted, the cost of money must inevitably rise. We are inclined to believe that a drop in the price of Victory bonds would offset in large measure the effect of the successful flotation of the issue. The conclusion would be plain that a portion at

least of the subscriptions were artificial and that the loan was not the successful undertaking about which we as Canadians did so much boasting.

If at all possible we must let Germany know that our subscriptions to the loan were real subscriptions; that there was nothing of the nature of camouflage about the Victory Loan. To prove this most conclusively let us look to it that the market price of the bonds is maintained at or near par, giving to Canada's credit a hundred per cent. value. We admit that this will be a remarkable achievement, if it can only be managed, but Canada has already beaten the world in the number of its war loan subscribers. Why should it not also take the lead in the after-flotation standing of its bonds?

The matter simmers down to one of individual responsibility. If every subscriber to the loan makes a resolve that for the glory of Canada, he will refrain from placing bonds on the market, except for the most pressing necessity, or until such time as all danger of a break in price is over, he will be rendering a national service.

There are probably some large subscribers, who made applications for bonds just to whoop up the campaign or to create an impression of strength, and who intended to unload quietly just as soon as trading began. These people might better never have subscribed at all than have subscribed under such conditions. To-day, let us appeal to any such who may have placed their names to the contract form, to be patriotic and hold loyally to their bargain. The larger the proportion of bonds that are bought to hold, the stronger will be the market for those that must perforce come out.

Iowa Repeals Rate Control Legislation.

AT the outset of the investigation of fire insurance before Mr. Justice Masten, acting as a Commission for the Ontario Government, the legislation of the State of Iowa was held out as a model likely to be followed in any legislation introduced in Ontario.

Since then, however, the Iowa Legislature has repealed the law of 1915 which vested in the Insurance Commissioner authority to declare the premium rate for fire insurance on any particular class of risks "Unreasonable," and to require the companies to substitute therefor a "reasonable" rate. The Insurance Commissioner criticizes the action of the legislature and also directs attention to certain rate increases which have been put into force and which he has now no power to pass upon.

The average loss ratio in Iowa of stock companies for the past few years has been as follows: 1912, 63.6 per cent.; 1913, 77.9 per cent.; 1914, 66.4 per cent.; 1915, 71.9 per cent.; 1916, 64.5 per cent. As a loss ratio over 60 per cent. admits of no profit to the companies, it will be seen that in the last five years fire insurance has been a losing proposition in Iowa. The companies were accordingly justified in taking such action as would place their business upon the basis where it would yield a reasonable profit.

Visions.

FOR a generation before the war modern Germans travestied Bismarck's calculated violence while incapable of his wisdom. Every sedentary professor, puffed up with swipes and imitation, imagined himself to be a son of iron and a potential man of blood. More and more the speech and writing of the whole nation became heavy with passionate and menacing metaphor. Swords, mailed fists and hammers jangled in this clanking vocabulary, but, on the whole, the hammers had it. The poet's word that one must be "either hammer or anvil" was repeated like a creed. Wagner, the race worshipping historians, the two kinds of pan-Germans, idealist and materialist, and a theatrical kaiser in a helmet, made mythology a worse agent of delirium than alcohol.

For political and fighting purposes was not Thor of the Hammer the real "good old German god"? Were not modern Germans at heart, despite all conventional disguises of modern clothing, the same superior, able-bodied people who issued from their woods to sack and slay for whole centuries amongst degenerate civilizations? Had they not overthrown Rome? Had anything but quarrels amongst themselves prevented them for a thousand years from arriving at an irresistible supremacy on the earth? But had not that destiny been postponed that in the twentieth century world domination by the Germans might be a more complete and final dispensation for mankind?

Speaking generally, said the pan-Germans, let it be wrought as with hammers. When war broke out popular cartoons showed the German Michael as a giant blacksmith wielding a sledge in each hand. Right and left all more puny nations and breeds must go down before these woundy implements. And if one quitted symbolism and came to reality, had not Krupps a more fearful and bruising power relatively to other forces in the world than Thor had ever wielded in mythology. Said German militarism to itself: "I am the war god; I am the thunderer." And so Armageddon was born of perverted imagination, creating monstrous instruments and breeding no less monstrous thoughts.

Now in the fourth year the actual situation is a Nemesis, tremendous beyond any in the whole world's record. The Germans, who continually quoted that one must be hammer or anvil, had forgotten the far older warning against becoming the thing between them. The Allies have been compelled to create a hammering power stupendous beyond anything that Germany had conceived possible or can hope to emulate. It is crushing the enemy's armies in Flanders; it is crushing him, or will crush in every other field where his destructive effort has brought upon him the reply. In every sense we may say that the Hohenzollern system itself is "under the hammer." It will not stay until the system that made the war is beaten to pieces, and the revival of Thor worship in the modern world is extinguished as the most grotesque and brutal superstition which ever arose to prove how much worse can be false politics than the falsest religion.

The cloud of European intrigue and false diplomacy is fast being moved. It is a straight out-and-out fight for the dethronement of kaisers and the enthronement of citizen kings; hence Canada must be a leader. The augury of the Victory Loan was not belied by the outcome of the general election in returning to power the Union Government. The election was also a refusal to allow Canada's immediate war policy and future destiny to be determined by those who have refused either to fight or to pay. What the Dominion has done in this war, when all is known, will be a testament commanding the reverence of history and creating new ties for all humanity.

All Express Optimism.

IT will be apparent to any one who takes the trouble to read the various industrial review articles which appear in this number of INDUSTRIAL CANADA, that Canadian manufacturers are on the whole most optimistic about the future. While recognizing and admitting present difficulties, they one and all express the conviction that Canadian industry will overcome the obstacles confronting it and emerge more powerful than ever after the war.

Naturally some branches of industry have enjoyed greater prosperity than others during the war period, but even those, like the musical instrument and furniture industries, which have seen a diminution in the demand for their products, have kept going without any serious break, and will be in a position to give a good account of themselves later on.

A steadily mounting increase in the cost of raw materials has been the common experience of all our industries and, coupled with the greater cost, has been the difficulty of securing supplies due to shortage of production and transportation troubles. At the root of the whole matter, of course, is the inadequate labor supply, a condition which cannot be righted until after the war ends.

A word of commendation must be expressed at the resource shown by many manufacturers in meeting and overcoming obstacles that have arisen since the war started. When sources of supply of raw materials were cut off, they set to work to discover other sources, and in many cases brought about the establishment of new industries in Canada. Particularly has this been true of the chemical and metallurgical industries, which, between them, have been accountable for starting several brand new enterprises in the Dominion.

The present issue of INDUSTRIAL CANADA will be found to be one of the most comprehensive yet undertaken. Among its contributors are manufacturers who stand in the front rank of the special industries for which they speak. In addition to these industrial review articles, several other instructive contributions will be found scattered through the pages of the number, all of which merit the attention of readers.

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News and Views of the Association

By G. M. MURRAY

An "Industries War Board" Recommended

ON January 8th, a delegation, thirty-five strong, representing the Canadian Manufacturers Association, waited upon the Acting Prime Minister and several of his colleagues to advocate the establishment of an Industries War Board.

Mr. S. R. Parsons, who acted as chief spokesman for the delegation, explained that the request which they had to make was occasioned by the steadily increasing difficulties which manufacturers were experiencing in securing from the United States certain materials and supplies necessary to their operation. In so far as these difficulties were due to actual shortage, Canadian manufacturers had no cause to ask for Government intervention, but in so far as they were due to United States embargoes, aggravated in some instances by price-fixing regulations to the benefits of which they were not admitted, Canadian manufacturers felt that they could reasonably call upon the Government for assistance, first in securing accurate information as to the real needs of Canadian industry in every class of material subject to embargo, and second in negotiating for allotments sufficient to cover those needs.

As showing the seriousness of the danger which threatened Canadian industry, the Secretary presented a lengthy list of lines of production that were already suffering by reason of the embargoes in question. Every one of these trades, he contended, was existing by the grace of the United States, in consequence of the powers which that country had taken unto itself; every one of them, he argued, would be compelled to cease operations were the United States to make these embargoes water-tight.

Continuing, Mr. Parsons stated that as the problem to be solved was essentially a business problem, it should preferably be referred to a committee of business men, clothed with appropriate powers. The information to be acquired as to the needs of Canadian industry was largely of a technical character, and the accuracy of any details supplied could be satisfactorily tested only by technical men. Bearing this in mind, he suggested the wisdom of having the committee surround itself with several small sub-committees, chosen from the best posted men in each trade affected, who would act in an advisory capacity and whose services would always be available when required. By means of some such machinery, the work of the License Branch of the Department of Trade and Commerce, the Food Controller's Department, the Fuel Controller's Department, and other branches of governmental activity created by the war could all be articulated; overlapping, with its inevitable friction, could be eliminated, while at the same time the gaps which now exist could be filled up.

Carrying the organization a step further, he suggested that a branch of the Industries War Board be established at Washington, where there would necessarily be a great deal of negotiating to be done. This work the Washington branch would be expected to perform in harmony with instructions to be issued from Ottawa. Its services might also be made available to Canadian business men whose cases required their personal attendance before any of the United States authorities at Washington.

In replying to questions from the Ministers as to the exact status of the Board to be created, members of the delegation made it clear that it was a matter of indifference to the Association whether the Board were made an adjunct of the Department of Trade and Commerce or whether it were made responsible direct to a committee of the Cabinet. They recognized that details of that kind must be left for the Government to work out in conformity with established practices. All they could do was to state their problem, to express their belief that the solution of that problem could best be worked out by business men acting officially for the Government, and to pledge the support of the Association in helping to make the Board's work effective.

While the members of the Government could do nothing more at the time than promise their sympathetic consideration, the delegation came away with a well-defined feeling of hopefulness that their mission would be followed by early action.

Yearly Industrial Census

With respect to the schedule which manufacturers have received from the Census and Statistics Office, Ottawa, over the signature of Robert H. Coats, Dominion Statistician, it should be noted that they have no option but to furnish the figures asked for. The Census and Statistics Act makes this quite clear.

The policy of the Canadian Manufacturers Association has always been to encourage manufacturers to complete census schedules as fully and accurately as practicable, not simply because it is the law, but because the statistics compiled from the replies received serve a very useful purpose. The schedules that are being sent out this year are almost the same as those that were sent out a year ago. A year hence the same enquiry will be made of manufacturers, and they can simplify their work very greatly by remembering that fact and preparing for it.

At the same time it may be stated that all that is required of a manufacturer is answers that are reasonably correct. With respect to some items, there will be some manufacturers who cannot possibly give accurate answers. The error will sometimes be one way, sometimes another, but if all manufacturers give what they consider to be reasonably correct answers, the figures compiled will reflect the situation as for Canada with sufficient accuracy.

Manufacturers are notified that they have twenty-one days within which to complete and return this form. On this point we would say that, while it is desirable to make the return as early as possible, it is highly improbable that any penalties will be imposed for failure to do so within the time allowed. Penalties would probably be imposed upon a manufacturer who flatly refused or deliberately falsified a statement. They might be imposed upon a manufacturer who ignored the Statistician's second or third notice. But every consideration will be shown those who for any good reason find it impossible or even difficult to comply within the time allowed.

The reason for item 4 in the general schedule may not be apparent to manufacturers whose working staff showed little fluctuation throughout the year. Its real purpose is to enable the Dominion Statistician to guard against error in the case of industries where the employment

fluctuates widely from season to season, such as canning, lumbering, etc.

It is highly important that the figures called for in item 5 be furnished with as much accuracy as possible, owing to the necessity of protecting Canada's supplies of fuel where those supplies have to come from the United States. The enquiry here made is the only official one on the subject, hence the desirability of making it full and complete.

Item 7 is included in the hope that the figures submitted may enable certain conclusions to be drawn that will prove valuable. In some respects, however, the Canadian Manufacturers Association feels that it is unfair to manufacturers to ask for this information. Any manufacturer doing justice to the rest of the schedule would probably be excused if his replies under this heading were given merely as estimates. The subdivision of taxes would probably be clearer if the first item were to read "Federal Taxes," for there are war taxes paid to the provinces through the municipalities. The line of differentiation desired by the Statistician is as between taxes which go to the Dominion coffers and taxes which go to all other coffers.

Where a supplemental schedule is enclosed with the general schedule, it should be answered with the same care and accuracy called for in answers to the general schedule.

Uniformity of Provincial Legislation

The first practical step towards greater uniformity in the business legislation of the various provinces has been worked out by the Canadian Bar Association. That organization has drafted a Bill which it is endeavoring to have introduced this year into every Legislature, providing for the appointment of a "Board of Commissioners for the Promotion of Uniformity of Legislation in Canada." The Board is to consist of three members of the Provincial Bar, who will hold office for three years. It is to be charged with the duty of examining such subjects as the incorporation of companies, insurance, assignments for the benefit of creditors and the discharge of debtors, frauds on creditors, extra-provincial judgments and their enforcement, partnership, sales and transfer, mortgage and pledge of property real and personal, execution and probate of wills, etc., with respect to all of which it is to endeavor to bring the laws of the various provinces more into harmony.

The Board is to meet annually in conference with the Boards appointed for the same purpose by other provinces, in order that laws may be re-drafted to a uniform type and submitted for approval and adoption by the Legislatures concerned.

All commissioners are to serve without compensation, though they will be re-embursed for their travelling and other personal expenses. To defray the cost of the work carried on by the National Conference of Provincial Commissioners, each province will be expected to contribute a sum not exceeding $500.00 per year.

The Canadian Manufacturers Association has been glad to give its cordial support to the proposal, though it would have liked to see the plan provide in some way for the representation of business interests. If the legislation is adopted, no doubt business interests will be freely consulted by the provincial commissioners, who will naturally want to study the needs of those for whose protection the laws are intended.

As a beginning this looks like a very practicable scheme, and if business organizations of every kind will only line up solidly behind it, there seems no reason why it cannot be put into early execution.

Coal Substitutes

If there is one lesson more than another that the present fuel situation should teach us, it is the necessity for leaving no stone unturned in an endeavor to make ourselves as independent of the United States as possible.

In so far as our coal consumption is for power purposes, we can do much by effecting the maximum development of our numerous water powers. For the present, owing to the high cost of all kinds of materials, our expansion along that line should go only so far as is absolutely necessary to maintain our production of war supplies.

An illustration was recently brought to our attention, indicating that the slabs and other refuse from lumber mills may soon come into their own. A firm in Kingsbury, Quebec, that long followed the usual practice of disposing of this material by means of an incinerator, is now selling it at $1.00 a ton loaded on the cars. For another 95c. a ton it can be transported to Montreal. While it is true that this stuff is green wood, fresh from the log, it looks as if someone should be able to drive a brisk trade in selling it as fuel when it can be laid down in Montreal for $1.95 a ton, or, roughly, $3.00 a cord. In competition with coal at from $9.00 to $10.00 a ton, it certainly appears to be worth investigating. There are scores of lumber mills burning up such refuse every day simply to get rid of it, all the while that people in our larger centres of population are shivering with cold.

Perhaps, too, the time is opportune for us to make a practical test of the possibilities of peat as a substitute for coal. Peat has been used for many years in various parts of Europe, but in Canada we have heretofore been able to buy coal so cheaply that peat has never entered into our calculations. At to-day's prices for coal, however, peat is not only a possibility, it is a probability. There are immense peat bogs in Canada, the discovered areas aggregating 37,000 square miles. Dr. Haanel estimates that at an average depth of 6 feet this area corresponds to over 28,000,000,000 tons of peat, having a fuel value of over 16,000,000,000 tons of good coal.

The Industrial Research Council has a splendid achievement to its credit in the discovery of a commercially practicable process for briquetting lignite. The peat problem should be equally capable of solution. Once it is solved, it would probably prove a more valuable contribution to Canada's development because of the much wider territory over which this material occurs.

Income War Tax Act

So far as manufacturers are concerned, whether in their capacity as distributors of dividends, employers of labor, payers of rent or what not, the troubles with which Section 6 (1) of the Income War Tax Act threatened them are at an end. The Minister of Finance has now interpreted this much debated clause to apply only to Trustees handling trust funds. It will, therefore, not be necessary for manufacturers to withhold from the salaries or wages of their employees the normal tax for which such employees would be liable under the Act, nor to deduct from the dividends of their shareholders the taxes that would ordinarily be payable thereon.

On the other hand, it should not be forgotten that the Income Tax is likely to be with us for some years to come. Under the most favorable circumstances it is going to be difficult for the administrators to get a proper line on everyone to whom it applies. The man who escapes even a portion of his obligation is not only defrauding his coun-

try but is creating dissatisfaction among those who voluntarily do their duty. While it is perhaps too much to hope that the slacker can be eliminated altogether it is easily within the power of every manufacturer and every employer to assist the administration in suppressing evasion by the simple expedient of supplying all the information asked for. When such information is called for, let it be supplied promptly and cheerfully, even though the giving of it entails trouble and at times some little expense. It is another way of doing one's bit in a worthy cause.

Coal Conservation

It was recently suggested to the Association by the Fuel Controller, Mr. C. A. Magrath, that it might be well to place at the disposal of manufacturers the services of technical men competent to give expert advice on all phases of combustion. He stated that the Fuel Administration at Washington entertained high hopes as to the economies that might be effected in this way and were sending a number of such men about to consult with large consumers. Naturally, Washington was anxious to see similar methods adopted in those parts of Canada which were dependent upon the United States for their coal supply.

Glad, as always, to co-operate with the Fuel Controller, the Association made enquiries and was soon able to advise its members in Quebec, Ontario and Manitoba that the following engineers had readily agreed to give their best advice to any manufacturer desirous of improving the efficiency of ihs boiler plant.

Alfred Balmfrith, Chief Engineer, McGill University, Montreal, Que.

Olaf E. Granberg, Vice-President, Boiler Inspection and Insurance Company, 227 Board of Trade Building, Montreal, Que.

W. F. Grazes, Chief Engineer, Montreal Tramways Company, Montreal, Que.

James A. Milne, Electrical and Mechanical Engineer, Works Department, City Hall, Toronto, Ont.

H. N. Roberts, President, Boiler Inspection and Insurance Company, Continental Life Building, Toronto, Ont.

J. O. B. Latour, Chief Engineer, General Accident Assurance Company of Canada, Continental Life Building, Toronto, Ont.

A. L. G. Taylor, Resident Inspector, Boiler Inspection and Insurance Company, Electric Railway Chambers, Winnipeg, Man.

In availing themselves of this service, membrs will please bear in mind that these gentlemen all have their regular work to attend to, but in so far as their time permits they will be glad, in the national interest, to give all the help they can.

Fuel Saving Don'ts

In this connection Mr. Latour was good enough to draft a series of very practical "Don'ts," which every engineer and fireman should be encouraged not only to study but to follow. The advice seemed so very timely that it has already been circulated to members in the three provinces mentioned above. INDUSTRIAL CANADA is glad to give additional publicity to it because it is so obviously in the public interest.

The things that firemen and engineers are asked not to do are as follows:

1. Don't fill the furnace with the intention that there will be no necessity for any additional fuel for the next two to four hours. This is quite a common practice with heating boilers, and with bituminous fuel results in very great waste.

2. Don't regulate the draft by closing the ash-pit door, but regulate it with a damper in the smoke flue or pipe between the boiler and the chimney. This also applies to any kind of furnace.

3. Don't allow any cracks in the brick setting of the boilers, because cold air will enter through these cracks and absorb the heat that should have been transferred to the boiler.

4. Don't permit the use of grates of any kind which are in bad condition. This will permit the unconsumed fuel to fall through to the ash pit and be shovelled out as ashes or waste.

5. Don't use a grate that is larger than will permit the burning of at least 12 lbs. of coal per square foot of grate per hour.

6. Don't permit any pipes or boiler surfaces to remain uncovered, unless it is necessary to transmit the heat through the surface of that pipe to the room in which it is located.

7. Don't permit any joint in the boiler or any pipe connected thereto to leak.

8. Don't permit any valve to leak which is located on a pipe supplied by the boiler. This is a very common source of loss. All valves should be positively tight when closed.

9. Don't attempt to control the quantity of condensation to be collected from any pipe or other apparatus by hand control. There are a large quantity of good serviceable traps to collect these returns of condensation and they should be returned from these traps to the boiler.

10. Don't permit any surface on the boiler exposed to the furnace heat to become covered with soot or ashes. The tubes should be cleaned at the very least daily.

11. Don't use live steam for heating rooms, liquids, or other substance when there is exhaust steam from engines or pumps available. If the exhaust steam is not of sufficient temperature to heat the room, the liquids, or other substance to the required temperature, arrange your heating to be done in two stages; for instance, water could be heated to nearly 212 degrees by exhaust steam, then passed through to another vessel to be heated to the desired temperature with live steam.

12. Don't feed a boiler with cold water when there is exhaust steam available to heat it. Every eleven degrees in temperature that feed water is raised by heating by exhaust steam there is a saving of 1 per cent. in fuel, and in winter time especially feed water is very seldom any warmer than 42 degrees. If this water is heated 212 degrees it will then effect a saving of 15 to 16 per cent.

13. Don't allow the main steam valves on any engine or pump to leak. This is a very common fault, due to the fact that the leak is not seen.

14. Don't allow the piston of any engine or pump to leak. This is also a very common defect permitted to go on day after day simply because the leak is not seen.

15. Don't take it for granted that pipes that lead to sewers, blow-off tanks, or other places of discharge, are tight. If the pipe is warm between the stop valve and the source of discharge it will generally pay to investigate a little closer, because it generally is a sure sign of leakage, with great waste.

More Restrictions Needed

If the fuel scarcity is real, as we believe it is, and not merely something that may overtake us in the near future, then manufacturers are not the only ones to be lectured and regulated and encouraged to economize. While it is true that in the aggregate they account for a great deal of the bituminous coal brought into Canada, their business instincts would cause them, without outside prompting, to avoid waste and to promote efficiency, particularly with the high prices ruling at the present time.

It is clearly in the public interest that our industries should be kept steadily in operation so long as it is practicable to do so. The material they produce is mostly necessary material, much of it for war purposes. Their profits are taxed to supplement the revenues of the country. They furnish employment to thousands of people who would soon be lost to Canada in the event of their having to close down.

Some of our industries are constantly on the verge of a shut-down, due to the uncertainty of the fuel supply. Is

it wise to temporize with a situation of this kind, when there are hundreds of theatres, moving picture shows, pool rooms and bowling alleys, all burning up coal for heating purposes? Is it safe to allow our schools and churches to carry on as usual while the danger which threatens our industries creeps steadily closer upon them? Surely there would be no injustice and very little hardship in a regulation temporarily prohibiting the consumption of coal by places of amusement. And surely our churches and schools could cut their coal consumption in half by the simple expedient of doubling up.

Of course, if the worst comes to the worst, we know that the restrictions to which we will have to submit will be much more arduous than those which are here suggested merely by way of illustration. But we do not want the worst to happen, and we can at least delay it if not prevent it altogether, by the exercise of a little common sense *now*, while there is still time to do something for our own protection.

Workmen's Compensation in Manitoba

For the second time within a year, Manitoba is witnessing the interesting spectacle of a commission investigating a commission. This time it is the Workmen's Compensation Commission that is having its affairs exposed to the public gaze.

The first Commissioner under the Act, Mr. Curle, resigned after only a few months' service to return to the Canadian Pacific Railway. While in office he selected as his assistant and expert adviser on rates one William Neill, who before that had been accountant to the Ontario Board. The present Commissioner, Mr. Wilson, seems to have taken Mr. Neill's ability for granted and given him a free hand to do pretty much as he liked, with the result that always follows when a man undertakes to run a machine he does not really know much about.

The first intimation employers in Manitoba received that the situation needed looking into was when they were notified that all rates would be advanced 10 per cent. When the rates were first fixed, an undertaking had been given that there would be no increase without full and frank conference among all concerned. Mr. Neill, however, is nothing if not officious and arbitrary (qualities, by the way, which kept him in constant hot water while in the service of the Ontario Board), and when he found a disposition among several of the liability companies to withdraw from the Manitoba field altogether, he sought to retain them by paying them more money, whether employers might like it or not.

The enquiry thus far has revealed the fact that the Manitoba Act has been administered in a most extravagant manner. The staff employed has been much larger than there was any occasion for, some members if it apparently having not enough to do to occupy more than an hour of their time each day. Although there has been an average of only five cases per day to handle, Mr. Neill considered it necessary to employ a statistician at $175 per month, and to have available for instant use two automobiles and an X-Ray machine.

Give men of narrow vision a little authority and it is surprising how much damage they can do. The principle of compensation is sound and will not be abandoned despite the mistakes of many men such as Mr. Neill. Unfortunately, the men who are chosen to put it into operation are sometimes the greatest stumbling blocks to its success. The errors which in Mr. Neill's case were so noticeable are in a modified degree characteristic of the administrators in certain other jurisdictions. There is altogether too little regard paid to the question of expense. When it is a case of showing generosity to an injured and deserving workman it is easy to authorize it because it will come out of the manufacturers, who are well able to pay it. If it is a case of buying new and costly furnishings for the office, again it is easy to approve a requisition because it is the manufacturers who are paying. Employers who put up all the money should have something to say about the spending of it. They are having their say now in Manitoba. They will insist upon having their say in other provinces just as soon as the screw begins to pinch.

Company Licensing Cases in Ontario

The Ontario Appellate Division, presided over by Chief Justice Sir William Meredith, has reversed the decision of Mr. Justice Masten in the Currie vs. Harris Lithographing Co. cases. Some Dominion companies have in consequence concluded that they must forthwith become licensed in Ontario, or at any rate they have felt that they had better do so, in order to be on the safe side.

It should not be forgotten, however, that whether these Ontario cases are appealed or not, the vital point at issue will be decided by the Supreme Court of Canada, if not by the Privy Council. In a case brought under the Manitoba Act, which is now before the Supreme Court of Canada, and which involves identically the same point as the Ontario cases, the Manitoba Court of Appeal divided evenly. This case will be heard by the Supreme Court in February. There is also standing for judgment before the Supreme Court of Canada a case from the Province of Saskatchewan, the decision in which will have an important bearing on both the Ontario and Manitoba cases.

Another point that should not be lost sight of is that while the Appellate Court in Ontario held that the province could require a Dominion company to become licensed, it also held that the provision declaring unlicensed companies to be incapable of maintaining actions in the courts was invalid. It is upon this provision that the provincial authorities have relied to make their Act effective. With this provision declared invalid, it is a question whether the Act need have any terrors for Dominion companies at all.

Are Dominion Companies Entitled to Refund of Provincial Registration Fees?

Now that it seems to be pretty well settled that the provinces exceeded their rights when they required Dominion companies to register or become licensed, the question arises are they liable for the return of the fees illegally collected in that connection?

The point is one of more than academic interest, for it is now before the Attorney-General of British Columbia in the form of a demand for a refund, put forward on behalf of a federal company located in Montreal. The Attorney-General says he is not prepared to recommend to the Government that the province make the refund, but he does not say that he will refuse a fiat. If he did he would be trespassing upon the prerogative of the Lieutenant-Governor. He takes his stand merely on the ground that the province should not be required to refund moneys paid on the basis of what was recognized to be the law when the payment was made. There seems to be plenty of room for the argument, however, that as those sections of the British Columbia Companies Act which required Dominion companies to register, have been declared *ultra vires*, all proceedings for registering such companies are auto-

matically annulled and made of no effect, in which case the money should certainly be paid back. Legal precedent makes it clear that when money is paid to anyone who had no authority to receive it, it may be recovered at law, even though paid under a mistake of law.

If the company now making the demand succeeds, then the Province of British Columbia will have to deal similarly with every other federal company from which it has illegally collected money. Not only that, but a precedent will be established that will materially aid in compelling other provinces to refund.

Apparently the only real danger to success is that the amount involved may appear too trifling to the plaintiff company to warrant the expense that might have to be incurred in an action under a fiat. This is a case where all companies concerned might profitably join forces in bearing the cost of a test action, for in the aggregate it may mean the return of many thousands of dollars. Any federal companies willing to co-operate will confer a favor by sending in their names to the General Secretary, Canadian Manufacturers Association, Toronto.

United States Enemy Trading List

We have received from the War Trade Board of the United States the first official list of persons and firms who are suspected of acting, directly or indirectly, for the benefit of enemies and allies of enemies, and with whom in consequence citizens of the United States are forbidden to do business by virtue of the provisions of the "Trading with the Enemy Act."

The list comprises about 1,400 names, and from the addresses given, it appears to be a fairly complete survey of South America, the Central American States, Mexico, Cuba, Haiti and the Dominican Republic. Additions to and variations in the list will be published approximately on the 1st and 15th of each month. They will all be kept on file at the offices of the Canadian Manufacturers Association in Amherst, Montreal, Toronto, Winnipeg and Vancouver, as a guide to Canadian firms desiring to co-operate in isolating such enemy concerns.

Many Canadian business houses will find it advantageous to receive the Official Bulletin which is published daily by the Committee on Public Information, 10 Jackson Place, Washington, D.C., the subscription price of which is $5 per year, or the Daily Commerce Reports published by the Bureau of Foreign and Domestic Commerce (to be ordered from the Superintendent of Documents, Washington, D.C.) at $2.50 per year, either of which will contain all supplementary Enemy Trading Lists. For copies of the first list, application should be made to the War Trade Board, 1435 K Street, N.W., Washington, D.C.

Compensation As Applied to the Halifax Disaster

Within the meaning of most Workmen's Compensation Acts, the Halifax Disaster was an accident, for it was "a fortuitous event occasioned by a physical or natural cause." Moreover, it is generally presumed in such acts that "where an accident occurred in the course of the employment . . . it arose out of the employment."

The Canadian Manufacturers Association has repeatedly advocated the insertion in such Acts of safeguards that would protect employers against the catastrophe hazard, but it has just as repeatedly been turned down. "What is the use," it is told, "of legislators concerning themselves about extreme cases that are never likely to happen." "Even if a catastrophe should occur," says organized labor, "the people who suffer by it are just as much entitled to compensation as those who are injured by ordinary accidents."

Quite so! But in the case of a calamity such as occurred at Halifax, what is there peculiar about a factory worker that he should have protection which is denied to the clerk in a retail store, or to the school teacher, or to the domestic servant? A street car conductor walking home after completing his turn, may have been killed in front of a factory by the very explosion that killed a man inside at his bench, yet the latter would be entitled to compensation while the former would not. Can any good defence be put up for a system which permits such discrimination? Is there any semblance of justice in an arrangement that would hold the manufacturer liable in one instance, and not the street railway company in the other?

The catastrophe hazard may be a remote hazard, but the very fact that it has occurred in Halifax shows that it is a real hazard. Just what policy the Compensation Board of Nova Scotia will pursue with respect to claims arising out of the Halifax Disaster we have not heard. It may be that the subscriptions which a sympathetic public has sent in from every quarter will obviate the necessity for the payment of all the compenastion which dependents would really be entitled to under the Act. But suppose the Board decides it has no option but to recognize in full all the claims that can be proven? Among the 1,800 fatalities and thousands of other casualties, it would seem a reasonable inference that there must be at least several hundred cases to which the Act would apply. If the fatalities alone are capitalized at $4,000 each, the charge upon some of the group funds will be enormous. It is said that 30 employees were killed in one printing plant alone. Can the printing industry of Nova Scotia stand an assessment of $120,000? With all the other taxes they now have to pay, can the combined industries of Nova Scotia bear the load of another assessment of say $2,000,000, for with so many cases of permanent disability, due to blindness, etc., it is easy to conceive that they might total up to that figure?

We do not attempt to argue that sufferers by the Halifax disaster are not entitled to compensation; for they are, but we do contend that the industries of Nova Scotia should not have to bear the burden alone.

SUPERVISE JAPAN'S SHIPPING.

Ordinance Passed Which Makes It Impossible to Sell Ships to Foreign Owners.

There was recently decreed in Japan an Imperial Ordinance for the control of the shipping industry. The provisions of the law are already in effect. The first three articles prohibit Japanese shipowners from selling their vessels to foreign owners. The Japanese cannot, without permission from the Minister of Communications, sell, lease, offer as security, or deliver to foreigners any Japanese ships. This measure applies also to ships under construction. Even ships which were contracted for sale before the ordinance was promulgated cannot now be delivered, according to *The Japan Advertiser*. Other provisions of the ordinance permit the Minister of Communications, if necessity should arise, to prohibit or restrict the carrying of passengers by Japanese ships from one foreign port to another foreign port. He can also designate the ports of call for the Japanese vessels; he can restrict the freight rates and can commandeer any shipbuilding yard or machinery necessary for shipbuilding.—*Japan Trade Bulletin.*



—Photo. by courtesy *Canadian Machinery.*

Princess Colliery, Showing Surface Equipment at Sydney Mines

Iron and Steel in Retrospect and Prospect

Growth of the Industry, Particularly During the Past Three Years, has been Phenomenal and the Outlook for a Continuation of the Present Heavy Demand for Steel is Promising

By LT.-COLONEL THOS. CANTLEY

Chairman of the Board, Nova Scotia Steel & Coal Co.



—B. & C. Press photo.

Lt.-Col. T. Cantley

THE production of iron and steel during the past year, 1917, has been attended by ever-increasing difficulties, due largely to shortage of important supplies, scarcity of labor, and delay in transportation. It is, therefore, particularly gratifying that the production of steel ingots and direct castings in Canada for the year will approximate nearly 1,700,000 tons, creating a new record, the previous banner year being 1916, when some 1,300,000 tons were produced.

The production of pig iron in the Dominion has likewise been relatively heavy, it being estimated that the output will proximate 1,200,000 tons in 1917, as compared with 1,150,000 tons in 1916. Of this total some 13,000 tons of so-called pig iron were produced in electric furnaces at different points throughout Canada.

In this connection it will be interesting to note that the electric furnace is playing a much larger part in Canada's steel production than heretofore, and it is probable that 45,000 tons of steel will have been produced by this method in the Dominion in 1917. This shows a quite rapid growth, the output from electric furnaces in 1916 amounting only to some 19,000 tons. The growth of this process has been particularly rapid in the United States and Great Britain. In the latter country 131 furnaces are now operated or under construction; of the total number 70 are in the Sheffield district. This probably makes the largest number of such furnaces in any one group in the world.

The development of this branch of the steel industry is directly due to the unprecedented demand for steel for war purposes. The advocates of this process of manufacture claim that it has many inherent advantages, which, together with the pressing demand for output, has led them to take advantage of the opportunity.

The production of steel ingots and direct steel castings in Canada for the past four years, 1914 to 1917, inclusive, was as follows:

	1914	1915	1916	1917	
Steel ingots	811,567	989,829	1,397,703	1,686,005	tons
Direct steel castings	17,074	31,067	30,546	42,807	tons
Total steel..	828,641	1,020,896	1,428,249	1,728,812	tons

The total quantity of electric steel produced for the four years was as follows:

	1914	1915	1916	1917	
Electric steel	61	5,625	19,639	39,069	tons

The figures for 1917 may be slightly altered when the December actual figures are obtainable, December outputs being estimates supplied by the operators. The total production of electric steel for 1917 may prove to be about 45,000

tons, the uncertainty as to this being due to inability or failure of the British Forgings, Ltd., to report as to their output.

Great Britain's Production.

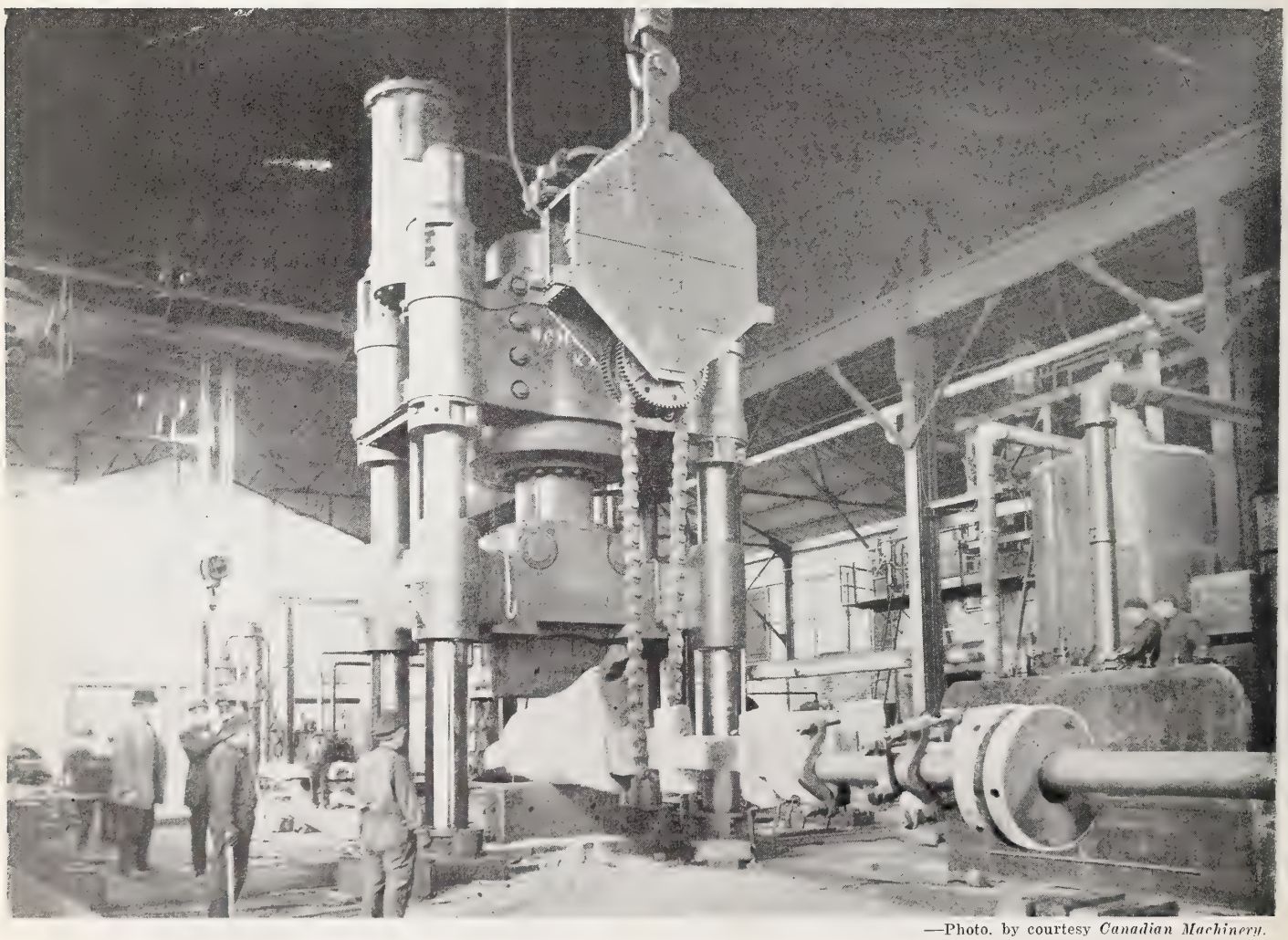
Great Britain, likewise, has largely increased her steel production. It is difficult to obtain official figures, but in a forecast by the Minister of Munitions some few months ago, it was stated that whereas the output tonnage of steel prior to 1914 had remained more or less stationary around 7,000,000 tons, it was expected that some 10,000,000 tons would be produced in 1917, and they hoped with the new construction under way, to produce at least 19,000,000 tons in 1918. And if the war continues into the latter part of 1918, it would find the nation with a capacity for steel production 50 per cent. greater than before the war.

In the United States the output of steel ingots will amount to approximately 42,000,000 tons, this being practically the same tonnage as produced in 1916. The output of pig iron, it is estimated, will be somewhat less than in 1916.

The production of coal in Canada during 1917 will probably total 13,000,000 tons, as compared with 14,483,395 tons in 1916, and 13,267,023 tons in 1915. The coal mines have been operated at the highest possible pressure, but under very severe disabilities. Lack of transportation accommodation, difficulty in obtaining supplies, but chiefly acute labor troubles and labor indifference have greatly hampered operations. There has been a good deal of labor unrest, and one wage increase has followed another, with further demands as yet unsettled. The labor shortage, however, was primarily caused by the great number of young, able-bodied, skilled miners who, in the early days of the war, enlisted in the armies of the Empire, and indeed have freely enlisted until about a year ago, when recruiting was discontinued in the colliery districts. Unfortunately, too many of the skilled men have been withdrawn from the mines, men not only skilled, but the bravest, most vigorous, intelligent, and all-round men, whom it will take years to duplicate. Naturally the coal output suffered during the past year. Whether the output in 1918 can be materially increased is an open question —it all lies with the men, for with steady work, reasonable hours, and the desire to honestly help in the war, a large increase could be obtained.

The Coal Situation.

More soft coal—about 50,000,000 tons—was mined in the United States in 1917 than ever before in the country's history —the total output being over 550,000,000. This is an increase of about 10 per cent. But the demand during the year has been abnormal, and the tonnage of bituminous coal mines was entirely inadequate to take care of the current needs, it being estimated that some 50,000,000 additional tons, or say 20 per cent. over normal needs, were required to meet industrial and domestic requirements. One of the most serious disabilities under which the United States coal trade labored was the lack of transportation accommodation, and the car shortage has prevented the operators of bituminous coal from



—Photo. by courtesy *Canadian Machinery.*

4,000-Ton Steam Hydraulic Press Forging a Ship's Rudder Head



—Photo. by courtesy *Canadian Machinery.*

General View from Office of Steel Plant at Sydney Mines

shipping, during the latter part of the year, in the vicinity of thirty millions tons.

Perhaps it may be axiomatic to say that the world's actual progress in industrial lines may be measured more or less by its consumption of iron and steel. The growth of this industry in Canada during the past ten years has been phenomenal, this being more particularly true of the past three years. Possibly the raw material resources of the Dominion were never appreciated as they are to-day. Canada has within its borders or within easy access (in Newfoundland), all the essentials such as ore, coal and the necessary fluxes requisite for the manufacture of iron and steel. Her coal fields are located at relatively good distributing points, her ore fields are easy of access, and her steel plants, particularly on the eastern seaboard, are excellently situated for both domestice and foreign business. Canada, therefore, with its present steel development as a nucleus, and its great natural resources, should, under wise direction, make important progress in the coming year, provided always that the necessary labor is available, and that labor is content with reasonable hours and wages in keeping with present living conditions.

Ruling Prices.

The prices ruling during the greater part of the year were considerably higher than those prevailing in 1916, Bessemer pig iron, for instance, selling in Pittsburgh, in September, 1917, at $48, as compared with $37.25 in November, 1916. Prices quoted during the year for other steel products were proportionately remunerative. In September, 1917, however, the American Government, in conjunction with representatives of the steel trade, materially reduced the prevailing prices, arranging a fixed scale which practically covers all iron and steel products. These prices applied equally to the public, the government, and the allies, and were voluntarily acquiesced in by the steel manufacturers as a whole.

While very high prices have ruled, costs have been on an unprecedented scale. Nevertheless, the industry has enjoyed a year of signal prosperity. This prosperity is shared with the country, as a large part of the earnings return to the government in the form of war taxes, thus bearing its proportionate cost of the war.

The Canadian iron and steel industry, since the outbreak of war, has made a magnificent response to the calls made upon it. Production has been speeded up, old plants enlarged, a very large sum of money has been spent on new equipment, and many labor and transportation difficulties overcome; the results obtained, in view of the obstacles encountered, generally speaking, being most satisfactory.



—Photo. by courtesy *Canadian Machinery.*

Pouring 6-Ton Ingots

Munitions.

Immediately on the outbreak of war Canada embarked on the manufacture of munitions. That it was possible to undertake this work was due to the satisfactory condition of the iron and steel industry, particularly in Nova Scotia, where the first experimental work was carried on. Shell forgings were produced in the latter months of 1914, since which time, until about midsummer, 1917, an ever-increasing flow of munitions, from the finished 18 pounder shrapnel to 9.2-in. high explosive shells, have gone forth, which undoubtedly has been of incalculable value to the Empire.

The benefits accruing from the development of the munition business in Canada have been many. Use has been made of the by-products from the coke ovens, and a large quantity of benzol and toluol is being produced. The lead, copper and zinc industries have

been put on a strong basis, and it is anticipated that as a result of the stimulus given during the past three years, within the near future Canada, as regards the latter-named metals, will be practically self-supporting.

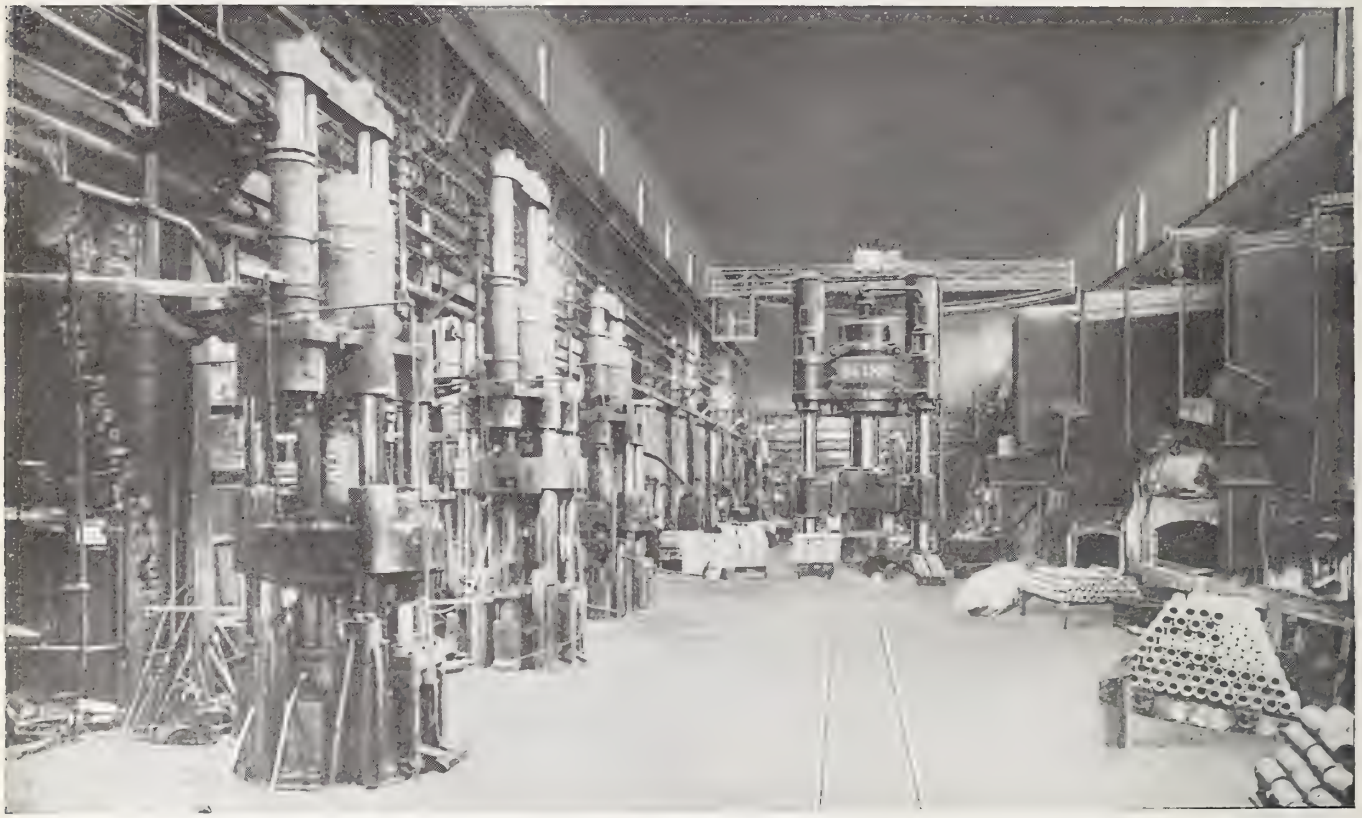
For the past year the munition business has been erratic. During the spring months, contracts for heavy H.E. shells (both forging and finishing) were cancelled, without, it is claimed, due regard to the contract conditions on which these were based. Friction developed in connection with the inspection, which contractors claimed was due to lack of experience on the part of the local inspectors, to the impractical and highly technical demands of the district inspectors, and the intolerant and high-handed methods of some of the chiefs. Despairing of improvement in method, and failing to obtain redress, a number of munition manufacturers withdrew from the business, and forging presses and finishing plants alike were idle.

At the time when contracts for hundreds of thousands of shells were cancelled, an extensive plant, comprising electric furnace and forging units, was being laid down in Toronto, to compete with existing plants laid down in good faith. These existing plants were developed and put in working condition under abnormal and unheard of difficulties, and their contracts were cancelled before it was possible from the work then executed to amortize anything like the cost of these plants.

In view of the conditions then prevailing, it became necessary for various manufacturers to again devote their attention to commercial work and find a market for their products. It speaks well for the adaptability of the iron and steel trade that they quickly adjusted the industry to changed conditions, and assisted by the keen demand for steel in the United States, due to the alignment of that nation as an active factor with the allies, and the insistent demand for railway material in France, very little loss and comparatively no delay resulted. The Scotia Company re-started their plate mill, and have turned out a very considerable tonnage in sheets up to 48 inches wide from one-eighth to three-quarters inch thick. This output has been exceedingly helpful in meeting a demand which at times seemed insatiable.

Within the past few weeks further munition orders have been placed in Canada, and it is rumored that large orders will be given out in the near future.

Some of our people appear to think that under war conditions state control is necessary in Canada as regards many, if not most, forms of the country's activities. Great Britain, of all parts of the Empire, has had most experience with this practical socialism, and Britain is most heartily sick of it. The London *Economist* expresses the opinion that "the war has done more to make all classes hate the very idea of state socialism than could have been achieved in the past if all the newspapers, books and speeches delivered had been concentrated on this one purpose. It then shows how a committee is much less intelligent collectively than its individual members. It is asserted that experiences in Great Britain with state controlled railroads, ships, coal mines, engineering works, food, drink, and newspapers causes an intense longing for the day when the Defence of the Realm Act will pass out of existence."



—Photo. by courtesy *Canadian Machinery.*

Forge Press Shop, Showing Battery of Shell Forging Presses and Heating Furnaces

Canadians in general believe that the present and the future of the Dominion and the Empire can best be conserved and advanced by individual liberty, individual initiative, and individual enterprise. One of the dangers now confronting the country, and causing discouragement, is the fear that it must deal with inexperienced men acting as controllers of some sort for the government.

The paramount blunder abroad has been the selection of men for places of authority because of their recognized cap-

acity in their own line of activity, but in lines quite apart from and devoid of any experience in or knowledge of the department or work which they have to deal with on behalf of the government. The result in many cases is misdirected energy, unnecessary meddling, unwarranted restrictions, friction, lack of results, and a general bedevilling and paralyzing of effort.

The outlook for a continuation of the present heavy demand for steel during 1918 is promising, and the probabilities are that all the steel plants will be operating at full capacity throughout the year. In the United States the demand for steel runs greatly in excess of the supply, and this condition will likely continue until the war preparations of that nation are completed. The result of this will be that Canada can only import from the United States such steel products as are absolutely necessary for war purposes.

The Shipbuilding Industry.

Canada is slowly developing a shipbuilding industry. During the past year many yards were built and are now turning out vessels of moderate tonnage. Old yards have been enlarged, and while the total steel tonnage produced in the year was small, the energetic action taken will result in considerable new tonnage being floated during the present year.

This industry, properly developed, will be a large consumer of steel. It has been announced that the Union Government will take up, at the coming session of Parliament, a shipbuilding programme on a broad basis, and lay down a policy for the future which will add greatly to existing steel shipbuilding and engineering capacity. Concurrently it is reported that orders will be placed for a considerable steel steamship tonnage.

The Dominion has never been in a better position to embark on this enterprise on a large scale, and by making the most of the present opportunity and by wise legislation, Canada can now build up and ensure a permanent shipbuilding industry, which will be of material benefit, not only as an outlet for our industrial population while building, but by ensuring both coasting and overseas transport of the products of Canadian agricultural, fishery and mine products.

One of the needs of the Canadian steel industry is a wider diversification of its products. At the present time there is an absolute dependence on the United States for certain shapes, large sections, and heavy steel plates. This applies to both shipbuilding and structural material. The difficulties in connection with the production of these in Canada are not insuperable. To lay down the necessary plant at the present time, in view of the scarcity of material, high prices and existing labor conditions, would call for an excessive capital expenditure. But Canada's needs in this respect are now imperative, and if the Government are prepared to meet existing conditions, the requirements of the Dominion in this connection can be met within a reasonable time.

Conditions After the War.

Although the transition from war to peace conditions—whenever it may come—must cause some temporary difficulty and disorganization, there is a confident feeling that there will rapidly develop a huge demand for the products of the steel industry in order to make good the devastation of war, and also to cover the vast arrears of commercial work which has been so long held up.

There is the further fact that the world scarcity of food, the devastated farms, manufacturing plants, town and homes of Europe, will make for an enormous immigration to Canada, to accommodate which will cause the opening up of vast new agricultural areas, with a consequent demand for railways, bridges, buildings, tools and implements. The prosperity enjoyed by the agricultural population should also result in a very great demand for farming implements. Railway equipment and rolling stock in Canada, and in fact the shortage of railway equipment throughout the world, is great, while needed replacements are not being made, and there is a veritable famine for equipment of this character everywhere.

These facts seem to lead to the inevitable conclusion that while there may be a slight hiatus immediately following the war's end, within a very short time thereafter Canada will embark on an era of unexampled and unprecedented development and prosperity, and in this activity and prosperity the iron and steel industry of the Dominion will be one of the first to participate.

May the day soon dawn when Canada's heroic sons, who have so gloriously battled for liberty and world freedom, will be triumphant and free to return to their homes, and again take their place in their old-time peaceful pursuits, honored by all for what they have dared and what they have done.

BANK OF COMMERCE COMPLETES 50 YEARS.

Gratifying Report is Presented to Shareholders at the Fifty-first Annual Meeting of the Institution.

Profits of the Canadian Bank of Commerce for the year ending November 30, 1917, amounted to $2,637,555, an increase of $198,000 over the profits of the previous year. This increase, it was explained at the annual meeting, was by no means commensurate with the additional business transacted or the additional responsibility involved, since of late years banks are called upon to perform far greater services for smaller remuneration than used to be the case. After providing for the usual dividends, a 2 per cent. bonus, a contribution to the pension fund, various patriotic subscriptions and the war tax on note circulation, the sum of $1,332,000 was carried forward to the credit of profit and loss.

Deposits now amount to $276,000,000, an increase of $46,529,000. In this connection, it was pointed out by the general manager that it was not until 1901, thirty-four years after the bank's establishment, that the total deposits equalled the amount of this increase.

The bank's cash holdings represent 18.19 per cent. of the deposits and circulation and 17.4 per cent. of the bank's liabilities to the public. Immediately available assets have increased by $37,995,000 and stand at 53.2 per cent. of liabilities to the public. Call loans in Canada have increased by $16,083,000, the net increase in the total of current loans being $12,097,000. Total assets showed an increase of $55,947,000 or 19.39 per cent.

LEATHER MANUFACTURER PASSES AWAY.

The death occurred at the Johns Hopkins Hospital, Baltimore, on Christmas Day, of Frederick George Clarke, president of Clarke & Clarke, Limited, Toronto. The deceased was the third son of the late John Clarke, who established a leather manufacturing business in Peterboro', Ont., in 1852, and has himself been closely identified with the leather industry for nearly forty years. When incorporation as a joint stock company was obtained in 1899 under the style of Clarke & Clarke, Limited, Mr. F. G. Clarke was elected president, and retained that office up to the time of his death.

Mr. Clarke was an active member of the Canadian Manufacturers Association and the Board of Trade, Toronto. He crossed to Europe many times in the interests of the business and had motored extensively in England and America. At the time of his death Mr. Clarke was on his way with his wife to spend the winter in Florida, but was taken ill unexpectedly in Baltimore, and passed away there a few days later. He is survived by two sons, both of whom are serving with the Canadian Forces overseas.

Cottons Branch of the Textile Industry

Raw Cotton and Dyestuffs have Increased Enormously in Price and there is a Serious Shortage of Cotton, but Canadian Manufacturers have Continued to Satisfy the Home Trade

By F. G. DANIELS

General Manager Dominion Textile Co., Limited



—*B. & C. Press photo.*

F. G. Daniels

AT the close of 1917, it may be stated that the consumption of raw cotton in the Canadian textile industry and the consequent production of cotton goods, both as regards poundage and yardage, are considerably in excess of what they were at the commencement of the war, though probably not much in excess of the possible consumption and output just prior to the outbreak of hostilities. The reason for this is that, during the nine months immediately preceding the declaration of war, trade conditions in Canada were abnormally quiet and the mills were unable to reap to the full the benefit of the automatic machinery and improved installation that had been made during the preceding two years. Since then, however, the manufacturers have made strenuous efforts to meet their responsibilities in the Canadian markets and have probably never pressed so strongly to obtain and train operatives as they have during the past year.

Also, it should be noted that the use of cotton for war purposes has resulted in a per capita consumption many times in excess of normal civilian requirements. Army orders in Canada, it is true, have stopped, our troops being supplied from other sources, but this slack has been taken up by the requirements of the United States army.

Increase in Spindles and Looms.

Practically every cotton company has, in some measure, either increased its spindleage or looms since 1914 and, after deducting the spindles destroyed at Halifax in the early part of December, there has been probably a total increase of approximately five per cent in spindles and looms. If I am not mistaken, the year on which we have just entered will see a further expansion of at least five per cent. There have been no additional plants built during the period under review other than that of the Empire Cotton Co., which, while it was erected prior to the war, was not yet in satisfactory operation.

The situation in Canada, so far as labor is concerned, has never been so acute. With European immigration stopped, with the enlistment of approximately half a million men in the army, with the enrolment of as many more in war-time industries and with the loss of a correspondingly large number of aliens who have left the country either because they were recalled or for other reasons, a shortage and a competition for labor have resulted that have sent wages far above the level of any previous industrial boom period.

All classes of material required in the industry have advanced from fifty to two hundred per cent., and raw cotton, which in normal times cost approximately $65.00 to $70.00 a bale delivered at a Canadian mill, now costs between $160.00 and $170.00 for the same staple. Chemicals and dyestuffs have, of course, advanced very much more and, although there has been some relief as regards the lower classes of dyestuffs, they are still selling at from three hundred to five hundred per cent. over pre-war prices. The better classes of fast colors are not being manufactured at all and are costing, when obtainable, anywhere from one thousand to two thousand per cent. more than they did before. With regard to transportation, this has not been a very serious hindrance to business, in so far as our Canadian roads are concerned, but, coming to the southern roads handling cotton, the situation during the year has been very bad, and has resulted in the loss of many hundreds of thousands of dollars to the industry. Conditions in this respect are apparently becoming still more serious with American roads, although strenuous efforts have been made and measures adopted to relieve the congestion.

Shortage of Cotton Goods.

There is, generally speaking, a shortage of cotton goods in all importing markets of the world, particularly India, China, and Red Sea ports, upon which markets the British manufacturer relies very largely for his outlet. There are no surplus stocks in the American market and Canadian distributors and retailers had, of necessity, to run on a hand-to-mouth basis for many months. The demand throughout the world has been considerably in excess of the supply, and values of goods have been held at a point much higher than in normal times. Canadian distributors and retailers have, however, shown exceptionally good judgment and there has been no plunging or speculation in cotton goods, with the result that the market has not at any time been in a dangerous condition in this respect.

Looking ahead for the immediate future, we cannot see that trade conditions are likely to vary much from those prevailing during the past year. Any attempt to estimate what conditions will obtain after the war will be mere conjecture, as all depends upon the time and the nature of the peace obtained. Those manufacturing countries which have an export trade and are in a position to supply requirements will undoubtedly find a satisfactory and profitable trade for some years to come.

With regard to the problems facing the industry, the majority of these are wrapped up in and will form a part of any peace settlement. One serious problem at the moment, however, is the supply of raw material. With three small cotton crops in succession; with continued lack of proper fertilizers as used in the eastern section of the belt; with the total absence of rains so necessary for the making of a crop in the western portion of the belt, and with the shortage of farm labor and the necessity for increased production of foodstuffs, the outlook is far from rosy.

The shortage of tonnage in the coastwise trade has thrown a much greater burden on the railways than they would appear to be able to carry, particularly with regard to coal. This extra business in turn has caused a material increase in the coal consumption by the railways and has resulted in a very real shortage all over the continent. This shortage has been the cause of a large number of complaints on the

part of manufacturers of mill supplies and is advanced as a reason for delay in deliveries. Doubtless, however, as war organization become better, a way will be found to supply legitimate requirements in essential industries.

During the year now closing there have been no special developments in the cotton industry, although it may be safely said that Canadian manufacturers have been able to satisfy the home trade, and that Canadian products are at least equal to the best imported cotton goods. Many lines of goods not previously made in Canada are now being manufactured and I believe the makers are firmly entrenched for the future.

We are looking forward to a victorious and abiding peace in the not far distant future, and after the readjustment period, expect our country to develop faster than at any previous time in her history. There is no reason why cotton manufacturing in Canada should not keep pace with the general growth of the country.

The Motor Car Industry Makes Rapid Strides

Canada's Record Crop and the General Re-activity of the Munition Plants Will Result in a Demand for Cars Next Season that Will Eclipse the Record of the Past Season and May Out-Distance the Supply

By R. S. McLAUGHLIN
President McLaughlin Motor Car Co., Limited



—*B. & C. Press photo.*
R. S. McLaughlin

IT is generally conceded that no Canadian industry has made such rapid strides, attaining to such magnitude in less than a decade, as the motor car industry. With a population of less than eight millions ; with parts of populated Canada inaccessible to gas-driven vehicles, where the automobile is a curiosity talked of, but seldom seen, and with parts of Canada, like Prince Edward Island, closed for motor-car traffic, our Dominion possesses over 178,000 motor cars of all descriptions.

Ontario owns half of this number, which means one motor car to every thirty-two of its entire population. This is a remarkably good showing when it is remembered that the roads in many parts, especially in New Ontario, are not of a nature conducive to the use of motor cars.

There are some American States with a vastly larger percentage of motor cars, notably California, which leads them all, but the climate of California is suitable for year-round motoring and the highways are ideal.

Motor Has Become an Essential.

Climatic conditions make California the great motoring centre of the States from the standpoint of consumption. Iowa takes second place, closely followed by the Dakotas, Montana and Nebraska, where the ratio runs from 11 to 13 people per car and that in a district where there are no great cities. The answer seems to be a double one, that the motor has become just as great an essential in the life of the farming element as it has to the city dwellers, increasing the farmer's ability to make money and thus increasing the wealth of any community, bringing its corresponding increase in land values; and secondly, that the financial reward of industry cannot be reaped by the great working public to any greater degree than it can from the farms. These two observations are backed up by conditions in Caanda, for following Ontario in the rapid increase in the possession of cars come the Prairie Provinces of the West. British Columbia, with a thin population less than the City of Toronto, scattered over wide areas of mountainous country easily runs away from the Eastern provinces. British Columbia's proportion of cars is one to every 78 of the population, while the best the Maritime Provinces can do is shown by Nova Scotia's sprinkling of one car to every 264 people. New Brunswick drops back of that again claiming 351 of a population to each motor. Quebec shows a marked improvement over the Maritimes, owning a car for every 200 of a population. All of which goes to show that the tide of Canada's prosperity is working from the east, westward.

Marked Increase in Use of Cars.

The marked increase in the use of cars in Canada since the beginning of the war is worth noting; 1915 saw 81,712 registered for the whole Dominion with a jump to 118,000 in 1916 and every indication that it will pass the 180,000 mark this year. Ontario alone is taking care of 23,000 of the increase, while the greater bulk of the remainder are going to the west. Indicating the trend of the buying mind is the fact that fully 15,000 of the new cars in Ontario were priced under the $1,000 mark.

It is only recently that the Deputy Minister of Highways for Ontario predicted a substantial increase in the number of licenses issued in this Province for 1917, and now that the year is well advanced it is evident that the predictions were well founded. Ontario's revenue this year will far exceed the $750,000 derived from this source in 1916.

Equally good reports are forthcoming from the West. The manner in which the Western farmer began taking up the motor-car question early in the summer was the basis for predictions of greatly increased business.

Evidence of how this branch of business has developed in spite of conditions throughout the West is contained in figures just published by the Saskatchewan Government. This province leads the three Western provinces in respect of licenses issued and reports 31,084 licenses issued so far this year. This figure constitutes a record and is in excess of the 30,000 mark which the officials had set their hearts on obtaining. Passenger cars for the Prairie provinces where distances are so great between producer and market and between neighbors are a boon and necessity to the industrial and, what is equally important, to the social life of the scattered communities.

Trucks have apparently increased in use, especially in the lighter trucks formed from the various converting units.

Rail transportation with a priority munition ruling is of course at present a great embarrassment, but the American

Government, through co-ordination with the various roads and the mammoth construction of cars and locomotives, will in the no distant future alleviate, if not entirely dispose of, this adverse condition.

Canada's record crop and the general re-activity of our munition plants will result, I think, in a demand for cars during next season which will eclipse that of the past stason, and probably considerably out-distance the supply, especially as it is conceivable that the present adverse transition through which we are passing may somewhat curtail car production.

Outlook for After the War.

As to the post-war outlook, I might point out that the Dominion Government has indicated its intention of going in for highway construction to facilitate the assimilation of the demobilized soldiers; that the Ontario Government is at present carrying out surveys throughout the province for a provincial system of highways and that the Governments of several other provinces are emulating its example in this.

Motor transportation, instead of railroad, for short hauls will be the vogue. Farmers will gain the benefit of getting produce to market promptly with high prices. City dwellers will have the advantage of fresher produce. The truck is rapidly displacing the horse, and the truck manufacturer bringing out the right truck for this demand will keep his manufacturing plant busy. With the construction of better highways the utility of the motor car increases and with it the demand will inevitably follow.

It is interesting to note that Ontario took approximately half of the Victory Bonds and that Ontario also owns half of the cars in the Dominion, which would seem to indicate that progress, prosperity, patriotism and the motor car go hand in hand.

Supplementing Mr. McLaughlin's article, the following information on the progress of the automobile industry in Canada, taken from a recent issue of *Hardware and Metal*, may prove of interest:—

The sale of motor cars in Canada during 1917 has been marked by a more general distribution throughout the country than in any previous year. Particularly in the west has this been noticeable, but it is apparent that all rural communities have been large buyers, whether due to the increasing measure of prosperity enjoyed by the farming classes, by the intensified good roads propaganda or by the general campaign of motor car education.

Canada has made a very definite gain as a car-owning country during the past year, and it is estimated that the number of cars now owned in this country reaches within a few of 200,000. This means that there is one car to at least every forty persons, which compares with a ratio of one to sixty shown by last year's figures.

Investment Reaches Enormous Total.

There is bound to be a certain amount of guess-work in placing a valuation on Canada's investment in motor vehicles, but among automobile men it is assumed that $750 would represent the fair average value of each car purchased. On this basis, it is a matter of easy calculation that this country has a present investment of $150,000,000 in cars. To this original outlay then must be added cost of equipment and accessories. For these it is estimated that every car owner spends at least $100 in a year, which makes a total reaching $20,000,000.

Adding to this the expenditure on gasoline and oil and when other incidentals are considered, it may safely be assumed that Canada's total investment in motor cars for the past year represents an outlay of $200,000,000. No greater evidence is necessary in determining the commanding position that the automobile trade occupies among the industries of the Dominion.

Where Canadian Industry Stands.

How much of this vast expenditure goes out of the country and the amount spent at home is difficult to determine, but Canada's capacity to take care of its own demand is increasingly evident and may to some extent be calculated. Registrations in Canada for 1917 represent, roughly speaking, an increase of 80,000 cars over those of 1916. In addition to these must be considered the number of cars that were scrapped, so that in the neighborhood of 100,000 new cars were operated during the past year. These represent a value of $75,000,000, and the value of the output of Canadian factories for the past year is calculated at about $60,000,000.

A review of imports shows that during the first six months of the present fiscal year, April to September, inclusive, motor vehicles, parts and tires, to the value of $13,144,405 were brought into Canada. This compares with a total of $17,056,685 for the fiscal year ending with March, 1917, it will be seen, however, that the imports of passenger cars in the six months almost equalled those of the entire preceding year, while the value of commercial vehicles brought in almost doubled, and that of tires imported showed a marked increase.

It is impossible to secure definite figures as to the value of the product of Canadian factories but an estimate of their growth can be arrived at in comparing government census statistics of 1910 with the special business census taken in 1916 for the preceding year. These show the value of the product for eight establishments in 1910 at over six and a quarter millions of dollars—whereas in 1915 the amount reached about twenty-four and a half millions. Repairs and accessories for 1910 amounted to considerably less than $200,000, but in 1915 the value of the product totalled about four and a half millions.

Twelve Factories in Canada.

There are now twelve automobile factories in operation in the Dominion. The number of accessory manufacturers can only be estimated, but it is notable that their growth has been most marked during the past three years, and they are now believed to be supplying 20 per cent. of the total demand for automobile supplies and equipment within the Dominion. This is, of course, outside of the tire business for which it is claimed a much greater percentage is controlled in Canada for the Canadian trade.

In considering the growth of the motor truck business in Canada, difficulties at once arise in view of the fact that few of the provinces have in the past kept separate records of the passenger and commercial car registrations. In 1916, when the first record for Ontario was kept, about 2,800 trucks were reported, but in 1917 this increased to nearly 4,600, which represents a percentage of increase almost identical with that shown in passenger cars. In Quebec a steady growth is noticeable in the number of commercial cars registered, having had 396 in 1914, 534 in 1915, 741 in 1916, and 1,100 in 1917, so far as has been reported. The truck registrations parallel those in Ontario in that they are in the neighborhood of five per cent. of the total. Working on that basis it may be assumed that Canada has not less than 10,000 trucks in operation.

Almost one-half of the total Dominion registrations are credited to the Province of Ontario. A factor in this situation is undoubtedly the fact that the twelve companies now engaged in the manufacture of automobiles in Canada are located

in the province, and this fact has also served to attract by far the greater proportion of accessory manufacturers. Ontario has progressed splendidly in the matter of good roads and presents a very fertile field for the automoble agent, and rural communities have of late become very liberal purchasers.

Figures of automobile registrations in each of the provinces for 1917 show Ontario with a total of about 85,000; Saskatchewan is next with 33,000; there is not much difference between Quebec and Alberta, the eastern province leading with 22,000 and Alberta close on her heels with 21,000; Manitoba with 17,500, and British Columbia with 12,000 complete the western provinces; next in order follow Nova Scotia with 5,700; New Brunswick with 5,100 and Prince Edward Island with slightly over 300.

When it comes to figuring percentage of increase for the year the Province of Prince Edward Island has the lead, having six times the number of cars it had in 1916, when only fifty were registered. This was, of course, due to the oppressive regulations, it being permissible to use cars only on certain days of the week and only on certain roads. But the breaking down of prejudices has been working gradually, and there are now over 300 cars on the Island, including six motor trucks.

The Prairie Provinces have reflected the prosperity of the farmers in that figures show double the number of cars in Alberta and Saskatchewan. Manitoba has made an almost 50 per cent. increase, while British Columbia has added about 35 per cent. to its quota.

The War-Born Twins of Industrial Canada

The Chemical and Metallurgical Developments of the Dominion

By E. B. BIGGAR

THE great war has been as the breaking up of the fountains of the great deep in the industrial history of Canada. This is true not only in the sense that new industries have been created that were never thought possible either in Canada or the United States; but these new developments are surely leading to others that are going to divert the trend of our industrial life into a new channel, as some vast upheaval of land turns the channel of a river into another country.

Before the war the textile, paper, pulp, leather, woodworking and many other industries of Canada struggled into positions of more or less national importance, and it was generally thought that such success as they achieved in their competition with foreign manufactures was largely due to the advantage they had in the importation of cheap chemicals, dyeing materials and colors, most of which were admitted free from European countries, especially Germany and Austria. Bearing this in mind, what high-tariff enthusiast would have formulated, or what Government working under the party system would have had the courage to endorse, a tariff designed to build from the foundation up a complete round of chemical and metallurgical industries? Yet the miracle has already been accomplished, and Bill Blockade and Bill Contraband have proved a mightier industry builder to Canada than Tariff Bill.

War to be Won by Chemist.

After the stocks of chemicals in neutral countries had been exhausted, which occurred within a few months of the outbreak of war, Great Britain and her Dominions, as well as the United States, realized that this war must be won by the chemist and metallurgist, and that the chemical and metallurgical industries had to be co-ordinated till the allied nations could be self-sustaining in the essential chemicals at least. In spite of predictions that this could not be achieved within ten or twenty years, Great Britain, Canada and the United States are to-day supplying their own needs, and are, moreover, helping their allies with munitions, explosives and ordnance. No figures are available from Great Britain, but at the middle of last year it was estimated that more than $400,000,000 had been embarked in new chemical industries in the United States, while in Canada $100,000,000 had been invested in chemical works and in metallurgical works specifically related to war chemicals. Every month new chemical and metallurgical works are being established in Canada and the United States, and those who best understand our national problems now realize that these industries must be made permanent, since they are as essential for the national safety in peace as in war time.

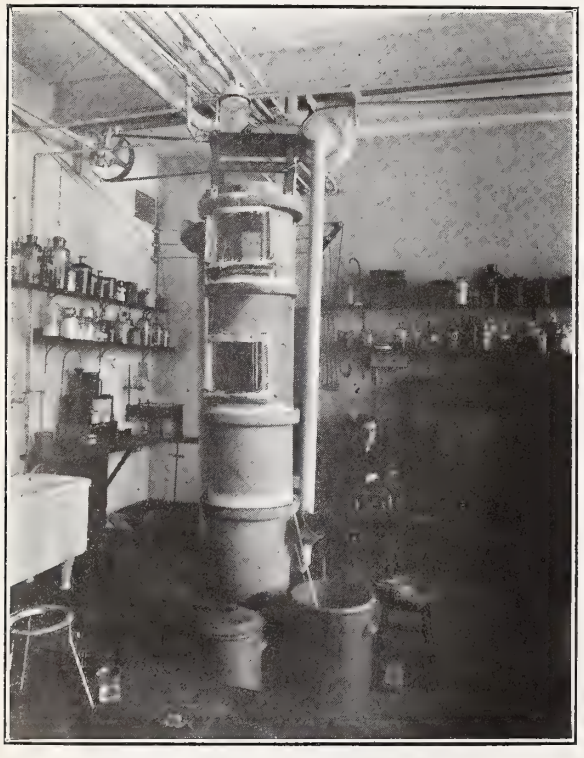
Fixation of Nitrogen.

Take for example some of the ramifications of the fixation of nitrogen from the air. There is a popular impression that in nitrogen, as well as the potash industry, Germany has a world-monopoly. This was true in a sense in the nitrogen industry; but the fact is that the natural nitrate deposits of Chili, from which Germany drew, are no longer available to German industry; that the Chilean deposits are now nearing exhaustion and becoming more expensive to extract; and further, that, even before the war, the hydro-electric method of producing atmospheric nitrogen was revolutionizing many chemical industries. For instance, Norway, starting in a small way in 1905, had developed this industry until in 1914 a total of 250,000 electric horse-power was devoted to that industry, while this year Norway is using 500,000 horse-power in fixing nitrogen. A large part of this output has been going to Germany, and the shortage caused there by cutting off Chili is made up by devoting both steam and hydro-electric power to this method of fixing nitrogen in German establishments.

The fixation of nitrogen as an industry is of immediate importance in war, seeing that this is the source of nitric acid and ammonia and other chemicals produced by reactions from these; but how much more important is the process in peace. Not only do these chemicals enter into the production of paper, textiles and scores of other industries, but the restoration of our depleted soils depends more upon nitrates than any other fertilizing compound. It is not merely Canada which needs nitrogen and its compounds, but the whole world, and since its production depends primarily on cheap water power, Canada and not Chili is the destined main source of nitrates, nitric acid, ammonia, etc. Out of a total of about 19,000,000 horse-power, roughly measured in

the more or less explored regions of Canada, less than one-tenth, or 1,712,000 horse-power has been brought into harness. This is the measure of the productive capacity of Canada in electro-chemistry, and if this were all applied to nitrogen and its compounds the whole world would not need to look for any source but Canada. Realizing the imperative need of replacing Germany as a source of nitrogen, the United States appointed a commission of experts to advise on a policy, and, acting on the commission's report, Congress at its last sesion appropriated $20,000,000 with which to begin nationally-controlled fixation works. Of this sum $4,000,000 was allotted for works operated by steam and not electric power. This was because a steam plant could be put in operation more quickly than a hydro-electric plant, economy of operation being a secondary consideration. But the main aim has not been lost to sight, and within the last month the U.S. Government has started thousands of hands at work on an immense electric-power plant for the fixation of nitrogen, located on the Tennessee river, and to cost $50,000,000.

The situation on this side of the Atlantic is that Canada has the only hydro-electric nitrogen fixation plant now in actual operation in America. It is located at Niagara Falls, Ont., and the fixed nitrogen is converted into cyanamid, and the cyanamid all exported to the United States to the extent of 64,000 tons per annum, the output having doubled since the war began. The owners are an American company, who take the Canadian product to a subsidiary plant near New



Absorption and Reaction Tower

Apparatus in laboratory of Queen's University for studying practical problems

York and make most of it into a new brand of fertilizer. This situation raises the question: What steps are the Canadian Government taking to secure the early production of the chemicals based upon nitrogen, which, as already shown, are of paramount national importance? So far no official move has been announced. Because of the time required to develop the works, because also of the large volume of power required, and the urgency of the need of nitrates, etc., after the war, the present delay will have serious consequences for Canadian agriculture and Canadian industries in common. These consequences will be serious when peace comes, and still more serious if the war is prolonged. On account of the high cost of developing the large amount of power for such work, it would seem a case for national action, rather than by private capital.

Other Chemicals Made in Canada.

Turning now to other chemicals made in Canada since the war, we find that many products heretofore wasted are now put to use, a notable example being the vapors recovered from the coking plants and converted into benzol, toluol, nitro-toluol and T.N.T. From the same basic by-products aniline oils and aniline salts are being made, and two dye-stuff factories are to be erected. Several factories have been started in high explosives on such a plan that after the war, they can be readjusted so as to continue work for the requirements of peace, just as the German chemical works were turned from peace work to war work. Acetic and other acids, acetates and acetone have been made on a scale heretofore not attempted in Canada, while the manufacture of calcium carbide—which Canada was the first to produce on a commercial scale—has greatly increased, much of this material now being converted into acetone. One factory produces four tons of acetone per day from carbide, the acetone going into the manufacture of cordite, the well-known propellant used in the allied armies. The distillation of acetic acid with sulphuric acid points to a large extension of the white lead and other branches of the paint and color trades and for mordants in dyeing; while one of the interesting developments of cobalt and its new alloys is the discovery of a new "dryer" in paint and color making. While on this topic we may note that another by-product of importance from the wood pulp industry is the recovery of turpentine from Canadian resinous woods, Canadian turpentine of high quality being produced by the Brown Corportation at La Tuque, Que. The Standard Chemical, Iron and Lumber Co., among a number of chemicals produced in Canada since the war, are manufacturing from Canadian woods oils that have been found equal to southern oils for the oil flotation processes by which Cobalt ores are now treated.

Aspirin, formerly considered a German monopoly, is being made in excellent quality in two places in Canada; resorcin, another German pharmaceutical product, is made in Toronto with equal success; as has benzoate of soda, benzoic acid, benzo-naphthol and a number of other derivations of benzoic acid.

Production of Potash.

Works for the recovery of potash from the flue dust in cement works, based on a process carried out in the United States, have been started in Canada within the past year, the most important being those now in progress by the Canada Cement Co. The feldspar rocks of this country have a higher percentage of potash than those of any other portion of the continent, and, moreover, the silicate contained in them is whiter and has less iron in it than American, so that from ten to twenty thousand tons are annually shipped to the States to be used in the porcelain and pottery industries of New Jersey and Ohio. These facts point to a great future porcelain and pottery industry in Canada, combined with a potash industry; but it is only fair to warn investors that no process now in sight can compete on equal terms after the war with the potash salts mined at

Stassfurt and in Alsace-Lorraine. That a commercially successful feldspar potash industry will be discovered sooner or later is as certain as that the difficulties which seemed insurmountable in the early days of the nickel industry have been overcome, and as the obstacles to the production of nitrates from the air have been overcome. It is likely to be achieved by combining the potash product with other by-products of feldspar as indicated.

The Use of Cobalt Ores.

The new cobalt ores have already been mentioned. Before the war cobalt by itself had become a drug in the foreign market, but the investigations of Prof. Kirkpatrick, of Queen's University, have not only revolutionized the old method of separating the cobalt from the silver and nickel contents of these ores, but work carried on in Ontario has laid the foundations for a new round of metallurgical industries which will give Canada the same natural advantages as she now has in the industries that have nickel as their base. By alloying cobalt with chromium, a metal is produced so hard as to replace high-speed tool steels in steel, iron and other metal turning. This metal, called stellite, will keep its efficiency while working at red heat. New cobalt alloys have been developed which, in some cases, will equal nickel for electro-plating. With the advantage of the raw material in such unequalled abundance, Canada should ultimately surpass both Hungary and Germany as the home of metal plated ware.

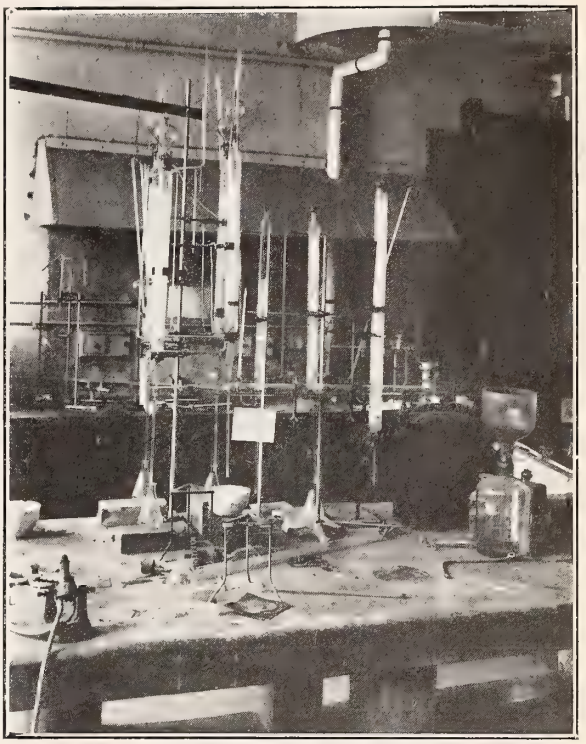
Much interest is being shown in the prospects of molybdenite ores, and some of our mineralogists claim that Canada, in the region lying between the Ottawa Valley and the western boundaries of Sudbury district, has deposits of molybdenite as great as nickel and cobalt compared with the deposits of other countries. Two works for producing molybdenum and its derivatives are in operation since the war, the products marketed being in the form of ferro-molybdenum (used to increase the strength and toughness of steel), molybdic acid and ammonium molybdate.

We must not forget to notice the recent exploitation of the magnesite deposits of the Ottawa Valley, which are now being made into magnesium. The Shawinigan Electro Metals Co., of Shawinigan Falls, Que., are turning out metallic magnesium of a purity exceeding 99.75 per cent., which is better than was produced in Germany before the war. It is an interesting fact that the star shells that are used to light the battlefields for the Canadian troops are made from Canadian magnesium; and, further, that new alloys of this metal are being used in the manufacture of metal household utensils which may displace those heretofore imported from Austria-Hungary.

Place of the Universities.

Many more items might be mentioned into the manufacture of which new capital is being put, but these are enough to open to view the wonderful possibilities of this country in the application of chemistry and metallurgy. Electric power has revolutionized the methods of producing the basic metals and will further revolutionize them, so that the future opportunities lie not merely in the possession of these vast reserves of power, but in the remarkable variety of minerals which form the base of chemical and metallurgical products most essential for the requirements of our complex civilization. Let us hope we will develop them with the aim of service to the world and not to selfish and monopolistic ends.

Those who have studied our industrial revolution must appreciate the work of the Canadian universities in directing their science to practical ends in the upbuilding of these new industries. No captain of industry has come in vain for counsel to the universities who have done so much for recruiting the technical help so vital to the new organizations. Every Canadian university has had in mind the devotion of their laboratory and research departments to the new industrial needs, and most of them have extended their equipment from the purely scientific to the manufacturing or semi-manufacturing scale. An example of this is afforded by the two illustrations of the laboratory equipment of Queen's University, showing an absorption and reaction tower and an apparatus for studying nitric acid production, both originally designed for the working out of industrial problems.



Nitric Acid Production

Another piece of apparatus at Queen's University used in industrial research

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CONTROL U. S. INDUSTRY.

Massey-Harris Co. Now Own Old-Established Implement Factory in Batavia, N.Y.

One of Canada's large agricultural industries, the Massey-Harris Co., Toronto, now control the old established implement house, the Johnston Harvester Co., Batavia, N.Y., which has been in existence for 40 or 50 years. They have had a large business in Europe and South America for the past 25 to 30 years, and have branch houses in several centres in the United States, as follows: Batavia, N.Y.; Harrisburg, Va.; Columbus, Ohio; Lansing, Mich.; Indianapolis, Ind.; St. Louis, Mo.; Kansas City, Kansas; and Fargo, N.D. They own an up-to-date, finely-equipped plant at Batavia, N.Y., consisting mostly of fireproof reinforced concrete buildings, including a malleable iron plant. The Massey-Harris Co. is also interested in another company in the United States, the Deyo-Macey Engine Co., of Binghamton, N.Y., owning the entire capital stock. At this factory there are manufactured gasoline engines and spraying outfits.

Position of the Paint and Varnish Industry

Building Slump has Caused Decline in Normal Demands, but New Markets have Opened. Raw Materials High in Price and Difficult to Secure. Labor Problem Not a Pressing One

By GEORGE HENDERSON

President and General Manager Brandram-Henderson, Limited



Geo. Henderson

THE upheavals provoked by the war have undoubtedly affected manufacturers, as a class, to a startling degree, but it is doubtful whether any particular branch of the manufacturing industry has had to meet more complicated problems arising out of the war than the paint manufacturers. It is a credit to the industry, as a whole, that it has met the shock of war conditions so successfully.

A few Canadian paint manufacturers have materially increased their outputs since the outbreak of war, but it is difficult to say whether this is merely a relative improvement or an indication of increased demand. It appears to me that in the domestic market, at least, the high cost of materials and the stagnation of population, with the resultant slump in the building trades, have afforded no encouragement to paint manufacturers to increase their output. With some few exceptions, then, the output of the paint-making industry in Canada cannot be said to have increased since the outbreak of war, despite a rapidly-developing export trade.

Difficulty of Procuring Materials.

One of the most serious difficulties that the war has forced upon paint manufacturers is in the procuring of raw materials. Previous to the war these were drawn from all over the world, and each of the present belligerents furnished a share of the materials which enter into the manufacture of Canadian paints and varnishes. Naturally the outbreak of war put a very severe strain upon our purchasing departments, who have been kept constantly on the alert, searching out new sources of supply. The cost of materials has increased enormously, and the situation has been further complicated by difficulties of transportation and exchange. For instance, the problem of Chinese exchange has contributed to the greatly increased cost of China wood oil. The world-wide shortage of shipping has also helped to increase our purchasing difficulties, not only by increasing the cost of transportation, but also by making deliveries uncertain.

As for the effect of war-time influences on markets, it must be admitted that the normal demand for paints has largely dried up. In peace times the demand for paints and varnishes arising out of new building operations is the backbone of our industry. So far as the cities are concerned, this demand has been negligible since the outbreak of war, and city trade has fallen off.

On the other hand, country trade has continued a reliable factor, and in the cities new opportunities have arisen to partially take the place of the old-time contracting trade. Conspicuous among these is the growing demand for marine paints, due to the revival of shipbuilding. The Imperial Munitions Board alone has under construction at the present time upwards of fifty wooden ships of 2,500 tons and a number of steel ships of similar capacity. Added to this extensive programme are the many wooden and steel ships which are being built by private enterprise all over Canada, so that the shipbuilding industry alone promises to make up, in some considerable part, for the inactivity of the building trades. There has also been an increased demand for paint from other manufacturers, notably for the painting of cars on export orders. All of these things have helped to maintain the demand for paint, so as to offset the practical disappearance of normal consumption.

Astonishing Advances in Values.

Values in the paint and varnish industry have shown some astonishing advances as a result of the war. The great basic raw material, white lead, has been forced up to unprecedented prices by the advance in pig lead, which, from a normal ante-war price of $4.25 per 100 lbs., advanced to $11.25 before being checked. Linseed oil, which before the war could often be bought at 48c per gallon, is now selling at $1.38, and has been and will be higher. Tin plate, from which paint containers are made, normally sold at $3.60 per box, and are now selling at $15.00, when they can be bought at all.

These are, perhaps, the three most important raw materials used by paint and varnish manufacturers, and their action is typical of almost the whole list, varied as it is.

With these and other considerations and data in mind, I hazard the statement that no Canadian manufacturers have been more reasonable than the paint manufacturers in advancing the prices of their finished products. A bushel of wheat will to-day buy far more paint than at any other time in the history of Canada. A similar comparison with other natural or manufactured products would be equally to the advantage of the paint and varnish manufacturers. This statement will bear emphasis and stand debate.

Outlook for After the War.

I have been asked to discuss the outlook for the paint and varnish industry in the immediate future and after the war. For the immediate future I am not worried. The enormous crop of 1917 has created a plentitude of money, as was evidenced by the great success of the Victory Loan. Assuming that the war continues, this circumstance, coupled with the undoubted economy in the use of paint during the past few years, leads me to predict a bumper year for the paint and varnish industry in 1918.

So far as the more distant future is concerned, I do not wish to pose as a prophet on a subject which has brought forth so many varied opinions from the best business brains on the continent. However, I have an abounding faith in

Canada. I believe that if we who have that faith will really try to instil it in others, we shall have nothing to fear.

If, with the declaration of peace, there should be two or three bad crops in succession, we will have business difficulties, but, even with that almost impossible combination of circumstances, there should be no great disaster. Our great Canadian banking institutions are not going to treat badly any legitimate business which has been making consistent profits for years past. Our financiers have broadened with the increased responsibilities that the war has cast upon their shoulders, and I believe that they will prove to be quite big and strong enough to handle Canada's after-the-war financial problems with the minimum of disturbance to legitimate enterprise. There will be no aid to speculation, either in land or in stocks, but I believe that reputable Canadian manufacturers will be amply protected, and will be enabled to safely weather any business storms that may develop with the return of peace.

Progress of the Export Trade.

I feel the more confident of the future because of the really wonderful strides that Canadian paint manufacturers are making in their search for export business. There is nothing like an export trade to put a country's manufacturing industry on a stable foundation. We stop "swapping pennies" when we commence sending our goods to foreign countries and bringing back their gold in return.

Canadian paint manufacturers have had a favorable opportunity to develop export trade, with their chief competitors in Europe either hampered or with eyes directed towards other interests. Some of the business we have worked up may be lost in the keen competition that will follow the declaration of peace. However, with our lines established in many diversified countries, we will never lose it all, and I believe it will really surprise us to find how little we will definitely lose when conditions return to normal. We are supplying foreign markets with high-class goods, and are putting them up in good packages. Foreign buyers are learning to respect us, and I think we will find a big residuum of business in our new markets even after competition has done its best to oust us.

As an industry, the paint manufacturers are more keenly affected by the problems of raw material than of labor. Now that we have the assurance of selective conscription, the labor situation should not become more grave. We can send the 100,000 men we are asked for without any great disturbance to industry. Of course, we must lose some men whom we would rather not lose, but I do not think that the present Administration will seriously embarrass any well-developed manufacturing industry, essential or otherwise. The essentialness of the paint and varnish industry is, of course, unquestioned.

Benefit from War Limited.

Most Canadian manufacturers have benefited either directly or indirectly from war orders. In the paint industry this has been true to only a limited extent. Special shell varnishes have been required, and, likewise, special wood stains for shell boxes. Some paint manufacturers, too, have directly assisted the allied cause by the manufacture of munitions. But, generally speaking, the shipbuilding programme is the first war development that has been of direct benefit to paint manufacturers.

The number of new paint and varnish plants established in Canada since the outbreak of the war has been smaller than in similar periods in the ante-war boom, but the industry has been far from standing still.

One large Canadian paint manufactory has declared its intention to establish a dye manufacturing plant, an American varnish manufacturer has opened a Canadian branch factory of considerable proportions, and an interesting development has taken place on the Pacific Coast. There a new company has installed a lead corroding plant, and two of the more important Canadian paint manufacturers have established new branches or "divisions."

I believe I am safe in saying that Canadian paint and varnish manufacturers have kept fully abreast of the progress in their industry, and that Canadian products will stand comparison with those of any other country in the world. It is upon this fact that I base my expectation of a good export trade in the future, which will offset such temporary depression at home as may, in the nature of things, occur from time to time.

ARMY MOTORS DETROIT TO SEABOARD.

Trains to Run Every Day for Six Weeks, Beginning Jan. 10, Carrying Loads of Freight.

As the result of the recent successful trial run of motor trucks, with freight, the quartermaster's department has decided to start similar trains from Detroit for the Atlantic seaboard every day for six weeks, beginning January 10.

The 46 motor trucks, which were started from Buffalo, N.Y., by the War Department on January 1 for New York City, 440 miles, made the journey in a little less than eight days. Severe weather prevailed throughout nearly the whole of the journey, the temperature being below zero a good deal of the time. This convoy was in charge of Captain J. K. De Loach and 101 men.—*Railway Age Gazette.*

SAMPLE HIDES FROM INDIA.

Dominion Department of Trade and Commerce Secures a Number for Inspection of Canadian Tanners.

India is said to be the largest and most important producer of hides within the British Empire, the quantity of raw Indian cowhides (kips) available annually being about 11,000,000, of which about 3,000,000 are tanned in the country. Prior to the war about 5,000,000 hides were annually exported to Germany and Austria. The German market being cut off, the British Government desires to secure a market within the British Empire for these hides, and it is hoped that even after the war is over Germany will no longer have the profit of treating these hides and selling the products to the world at large.

The Department of Trade and Commerce, by arrangement with the Hides and Tanning Materials Committee of the Imperial Institute, has secured a large number of samples of the Indian cowhides for exhibition in different centres where tanners may inspect them. These hides are now on exhibition in Toronto, and will remain there until the 25th of January. The tanners of Ontario may inspect them on application to Mr. W. Canham, of Wilson & Canham, Limited, 36 Wellington Street East, Toronto, who will have charge of them while they remain in Toronto. They will be afterwards exhibited in Quebec city and other centres. It is hoped that all the tanners of Ontario will avail themselves of the opportunity to inspect these hides while they are in Toronto.

Full particulars regarding these hides may be obtained from the Commercial Intelligence Branch of the Department of Trade and Commerce. (Refer File No. 18459.)

Progress of Industries of British Columbia

A Review of the Year's Developments in the Lumbering, Shipbuilding, Pulp and Paper Manufacturing and Canning Industries of the Pacific Coast Province, with a Forecast of Future Possibilities in Each

By STEPHEN GOLDER

Lumbering

IF the lumber situation is any criterion, British Columbia has little cause to worry over business prospects for some time to come. Usually at this time of the year prices fall off, orders cease or are few and the outlook in any direction is darkened.

Loggers who have lately visited the coast say that labor is plentiful—but it is principally foreign labor—still it is there. One lumberman stated he had worked for months in one camp and only found two men he was able to converse with.

The latest action among the associated lumbermen of British Columbia has been a bold and apparently quite successful move. At the dead time of the year, they have raised prices all round, approximately as follows: Edge grain fir advanced $3 per thousand; finish fir advanced $2 per thousand; dimension fir advanced $1 per thousand; boat decking, rough clear, advanced $10 per thousand; timber advanced $4 per thousand.

The cause for this is without doubt in a great measure the high prices that are being paid for shipbuilding material. The price of timber has been raised from $21 base to $25 almost solely in sympathy with the price that is being paid by the shipyards for heavy timber.

There are, however, other items such as common dimension, which are only indirectly affected in this manner, and it is fair to the millman to say that a good deal of the increased receipts per thousand are only his during a brief period of transit. Wages are steadily rising and there is no telling where they will stop. Efficiency is on the wane, which really makes wages higher than ever they look to be. Materials and tools are in some cases higher and in others almost unattainable. A well-known millman who makes a specialty of cutting ties (the easiest sort of milling, taking the commonest sorts of logs) declares that he could double his business with ease if he could get the labor.

For the ten months of the calendar year, 1917, 1,309,221,177 feet of logs have been cut in the province. This compares with 1,279,852,662 feet for the full calendar year of 1916, and with 991,780,200 feet for the year 1915. It is estimated that the total log scale for 1917 will total 1,636,000,000 feet. Not only is this a big increase in output but the value of timber due to the pressing demand has increased considerably. The value of the output for 1915 was $29,150,000; for 1916, $35,528,000, and it is estimated that the value of the lumber output for 1917 will approximate $48,000,000.

Increase in Amount of Logs Scaled.

Up till the end of October last the Forestry Branch of the lands department of British Columbia report shows that the amount of logs scaled gives an increase over the preceding twelve months of 24,462,000 feet above measurement. The report shows an increase of over five and three-quarter million dollars in the sales of manufactured lumber during 1916 over those of the preceding twelve months.

It is safe, says a well-known timber authority, to prophecy a very large increase in monetary sales for the present. It is deemed quite within the bounds of reason to expect an increase near to seven or eight million dollars. Of course the Military Service Act is taking away a large number of men from the camps, but the place of the Canadians is being taken by Austrians and eastern Europeans who are either hostile or indifferent to war troubles.

If it is possible to organize the spruce belts of British Columbia, the Imperial Munitions Board have indicated their intention to take anything up to 30,000,000 feet of the manufactured article per month. There is a large future ahead for the spruce industry in the province. What will be needed, however, is a comprehensive movement to get both men and machinery into all the spruce areas with the quickest possible dispatch. The whole question resolves itself into a matter of getting logs into the water in the first place and the mill facilities afterwards. There is every indication that if British Columbia finds herself in a position, either by the extension of present enterprise or the institution of new productive efforts, to develop her spruce industry to almost unbelievable limits, the market awaits.

Shipbuilding

British Columbia's "newest industry," shipbuilding, bids fair to rival all other industries in the province. Negotiations have been completed during the last days of 1917 whereby one large firm has secured $5,000,000 worth of shipbuilding contracts, which will include the building of four steel steamers, in addition to five now under construction for the Imperial Munitions Board. These vessels are valued at $1,250,000, so that it will make an additional $5,000,000 worth of ships for the city of Vancouver alone. Approximately $12,000,000 worth of shipping will be turned out by one firm during the next year or two.

The recent launchings of wooden schooners built in Victoria and Vancouver marked the inauguration of an industry which promises to assume enormous proportions, and be only limited by the availability of sufficient and suitable labor. The programme is about equally divided between steel ships and wooden ships. At the present moment there is under construction in the province about fifty wooden ships of different classes and there are employed in the shipbuilding yards about two thousand workmen, of whom about twelve hundred are in Vancouver city and North Vancouver.

Wooden ships have been built in British Columbia for many years past, but only on a very small scale—the first recorded instance being in 1788 at Nootka Sound. Since that time many small vessels have been constructed from time to time. Twelve months ago there was not a single ship of any description building or projected in the whole of the province, but now the industry is in full swing in Vancouver, North Vancouver, Victoria, Fort Coquitlam, Esquimalt and New Westminster.

The province contains inexhaustible areas of timber lands, which will provide the required wood for centuries, and now that there is a slackening off of shell-making in the munition factories, many of the steel companies will be able to turn their attention to the manufacture of steel plates, providing work for an indefinite period.

With three transcontinental railways, the province is well

supplied with transportation facilities. The outlook for a big, new industry is altogether bright, as at present labor is available, a large quantity of ship carpenters have been obtained from the Eastern States; besides there has been a large influx of skilled workmen from the prairies—glad to get away from zero temperature to work under warmer conditions. The United States has also supplied us with a number of good workmen.

The shipbuilding industry should be in a much more flourishing condition than it is. Within the harbor area and on the new Granville Island site there are several thousand feet of water-front available for construction work. Both the Imperial and the French Governments are in the market for ships, and for as many as they can get. The demand for tonnage space keeps constantly growing, but the Dominion is not increasing her energies in proportion to the need. Both in Vancouver and Victoria there should be shipbuilding plants along the entire water-front.

Vessels Launched in British Columbia During 1917.

Jan.	27.	Motorship.....*Mabel Brown.*
Feb.	3.	Motorship.....*Margaret Haney.*
Mar.	6.	Motorship.....*Geraldine Wolvin.*
Mar.	24.	Motorship.....*Laura Whalen.*
Apr.	29.	Motorship.....*Jessie Norcross.*
May	18.	Steel steamer.....*War Dog.*
June	12.	Motorship.....*Esquimault.*
June	28.	Motorship.....*Janet Carruthers.*
Aug.	11.	Motorship.....*Malahat.*
Aug.	11.	Motorship.....*Mabel Stewart.*
Sept.	22.	Motorship.....*Jean Steadman.*
Sept.	29.	Motorship.....*Marie Barnhard.*
		Also 2 steel shallow draught steamers.
		2 250-ton power cruisers.

(Vessels constructed for naval purposes not included in list.)

The Present Shipbuilding Programme in British Columbia.

Firm.	Type of vessel.	No. of ships.	Combined gross tonnage.	Combined dead weight.	Progress of construction. Afloat.	Bldg.
Wallace Shipyards Ltd., North Vancouver	Auxiliary power schooners	7	11,200	17,850	6	..
	Steel steamers	3	9,000	14,100	1	1
Cameron-Genoa Shipbuilders, Victoria, B.C.	Auxiliary power schooners	6	9,600	15,300	5	1
	Standard steamers for Munitions Board	4	7,200	11,200	..	3
John Coughlan & Sons, Vancouver, B.C.	Steel steamers	10	58,380	87,200	..	9
Jarrows Limited, Esquimault, B.C.	Shallow draft steel steamers	4	3,600	6,000	2	2
B. C. Construction & Eng. Co., Ltd., New Westminster, B.C.	Standard steamers for Munitions Board	4	7,200	11,200	..	3
Foundation Co., Ltd., Victoria, B.C.	Standard steamers for Munitions Board	5	9,000	14,000	..	3
Western Canada Shipyards, Ltd., Vancouver,	Standard steamers for Munitions Board	6	10,800	16,800	..	3
Pacific Construction Co., Ltd., Coquitlam, B.C.	Standard steamers for Munitions Board	2	3,600	5,000	..	1
Lyall Shipbuilding Co., Ltd., North Vancouver	Standard steamers for Munitions Board	6	10,800	16,800	..	3
Vancouver Shipyards Ltd., Vancouver, B.C.	Power cruisers	2	500	800	2	..
Totals		59	140,880	216,250	16	29

Canning

From official figures given out by the chief inspector of Dominion Fisheries it is seen that the pack of canned salmon in 1917 for British Columbia is, in exact figures, 1,557,435 cases. This is 562,370 cases more than the pack of 1916. The nearest big year was 1913, when the pack was 1,353,901 cases, so the year 1917 is greater than its nearest former big year by 203,534 cases.

The pack of 1917 is the biggest pack ever put up in British Columbia. This is due to the great increase in the pack of the pinks and chums, which varieties of salmon before the war were not in great demand, but which are now eagerly sought for by the allied countries so busily fighting.

By divisions the pack was: The Fraser River, 377,988 cases; Skeena River, 292,219 cases; Rivers Inlet, 95,302 cases; Naas River, 119,495 cases; Vancouver Island, including Lummi Bay and Nootka, 377,834 cases; outlying districts, 294,597 cases; making a total of 1,557,435 cases.

In 1913, the former big year, the Fraser River yielded 752,059 cases, so there is a falling off this year of 354,075 cases on the Fraser River, which made only a half showing for a big year. Last year, however, the Fraser River produced only 106,440 cases; so compared with last year the Fraser did three times better this year.

Last year the Skeena River produced 223,159 cases. This year's pack on the Skeena River shows an increase of 68,961 cases of pinks or humpbacks. In 1913 the Skeena yielded only 164,055 cases of all kinds of salmon. At Rivers Inlet the pack this year was greater than last year by 9,919 cases and 41,879 cases greater than in 1913. At the Naas River the pack this year was less than the pack last year by 7,191 cases, but greater than the pack of 1913 by 24,605 cases. At Vancouver Island the pack this year was greater than that of last year by 132,701 cases, owing to the operation of the additional canneries, which took advantage of the runs of fall fish. The increase in the pack in Vancouver Island is significant, as it almost equals the pack in the Fraser River. The outlying districts, including Queen Charlotte Islands, produced less than last year by 13,238 cases and less than the year 1913 by 41,671 cases, according to the official tables.

The feature of the year's operations was the small number of cases of sockeye packed. On the Fraser there were packed only 1,236,614 cases, as compared with 684,596 cases in 1913, the former big year. Yet at that, this year's pack was greater than last year's pack by 96,220 cases. The Skeena River put up 65,700 cases of sockeyes, as compared with 60,823 cases in 1916, showing an increase for the year of 4,937 cases. Rivers Inlet did better than last year with sockeyes, putting up 61,195 cases, an increase of 16,259 cases. Naas River did not do so well, putting up only 22,188 cases of sockeye, as compared with 31,411 cases in 1916, a decrease of 9,223 cases. Outlying districts and Vancouver Island did better with sockeye in 1917 than in 1916. The total sockeye pack for British Columbia this year was approximately 315,000 cases. In 1916 it was 193,137, and in 1913 it was nearly 700,000 cases.

Prices to fishermen were unusually high for all varieties of salmon, because of the competition from United States buyers and from the buyers of British Columbia fresh-fish firms, an element that is yearly affecting the canning industry. The year 1917 is considered a fair year for all concerned in salmon canning. With the scarcity of sockeye, the cheaper grades, such as pinks, chums, and cohoes, achieved a prominence, and because of the demand for sockeye which could not be satisfied, secured a price that was unusual. While sockeyes sold for as high as $16.50 a case, pinks rose to $9.00 a case. The blocking of the Fraser River at Hell's Gate by a rockslide in 1913 is blamed for the poor run of sockeye this year, also the intensive fishing in Puget Sound by United States purse seines and traps.

The canned salmon market is chiefly an export one. In July, August and September of 1916, the bulk of the B. C.

salmon pack of 1917 was contracted for, although difficulties were presented to the buyers. The buyers made good out of it, for the demand grew as the season went on, while the scarcity of fish, cost of catching and packing, were all against the packer. By the end of November, however, the whole B. C. pack was disposed of. Some few lots of chums are still on the market.

A feature of the year has been the canning of herring by several packers other than the pioneers in this branch of the trade. This bids fair to be an important part of the canning industry in British Columbia in years to come. The herring abounds in British Columbian waters, moving around in enormous shoals, being plentiful in certain localities at one time and entirely absent at others. The curing of herrings is practically a new line of industry in the province. The developments of the last few years, coupled by the importation of a number of real Scotch herring lassies who were adepts in the method of handling the fish, and the securing of many women in British Columbia who had formerly worked in the herring industry in Scotland, has made it possible to compete successfully with the real Scotch article. A large trade in smoked herrings, bloaters and kippers is now being prosecuted in the prairies and the western United States. The present shortage in the European markets has helped to give British Columbia the opportunity wanted, and now the province is shipping many carloads per month of Scotch cured and smoked herrings to the Chicago markets, as well as to interior and eastern Canadian points. Last year one firm alone shipped some five million pounds of Scotch cured herrings to the eastern States, and so far the demand far exceeds the supply—and will continue to do so until the present license regulations are altered.

The time is rapidly approaching when those now engaged in the capture of salmon halibut must necessarily turn their attention to the harvesting of fish equally valuable as a fish food, but apparently at present ignored owing to the traditional absorbing demand for halibut. If we are to keep up our ever-increasing demand we must necessarily turn our attention to something beyond halibut, salmon and herrings. Take the flounder family first, as they are so closely allied to the halibut. Arrangements should be made to place these fish on the market in an attractive and modern manner, and therefore avoid what might result in an unsuccessful experiment. Flounders handled in a modern manner not only make a good substitute for sole, but we defy anyone but a connoisseur to detect the difference.

Only a few Small Boats Engaged.

This branch of fishing must eventually have a great future on this coast, because we have in every bay and inlet and foreshore all along our coast to Seymour Narrows a never-failing enormous supply of these fish of magnificent quality, variety and size. The coast is swarming with this excellent food supply, and no one appears to be engaged in their capture beyond a few small boats, who capture mud flounders of the lowest type within the environments of the Fraser River and Vancouver Harbor.

Again, men who have lived in Norway, and were from time to time engaged in the capture and canning of sardines, say that there are inlets along our coast prcatically crammed with these fish, and there is all the material ready to build up a great industry, particularly now that the sardine countries have other more serious matters in hand.

Then also we have such an enormous variety of edible fish frequenting or indigenous to our waters that it is difficult even to superficially detail them, or rather to classify them. However, generally speaking, we have several varieties of bass and rock fish, cultus cod, black cod, gray cod, hake, whiting, and last, but the most prolific and valuable fish, the much-despised "red cod." All these fish are in abundance and, as far as we have learned or seen, no one has engaged commercially in their capture, with the exception of the cultus cod in the Gulf of Georgia.

It is universally admitted by those who have used red cod as a food, whether by force of circumstances or chance, that the red cod are without exception one of the choicest edible fish indigenous to our waters. Strange as it may appear, these fish practically do not appear in our markets.

One is led to wonder why the Pacific market is practically confined to the everlasting salmon halibut. However, those engaged in the distribution of our fish food supply have, no doubt, some wise reason in holding back all other forms of fish food that literally swarm along our shores.

It is no use saying, "No demand exists." No demand has ever been been sought for, is the real explanation.

Yet the National Service Board of Canada says: "Every fish you can catch is needed," and the Hon. J. D. Hazen recently stated: "I have returned from England more than ever impressed with the need for intensified effort on the part of those who produce sea-food, and appeal to you for an earnest and sustained endeavor to make the gross weight of fish taken from ocean and lake in the course of the present season much greater than before."

Pulp and Paper Making

Wood pulp in British Columbia is at present produced mainly for export, and to some extent for the manufacture of news print locally. There is, however, a wide field for future developments along the lines of recently discovered applications of wood pulp as a raw material, and with transportation facilities and labor conditions favorable there is little doubt that within the next few years such industries will spring up in the province.

A great factor in the successful working of this industry is cheap power. The plants now operating have installed their own hydro-electric systems, and there is practically an unlimited water-power running to waste at the present time at a dozen points on the coast in close proximity to pulp limits.

The markets that can, with special facility, be supplied from British Columbia are: United States, Australia, New Zealand, China, Japan, Hawaii, the Philippines, west coast of South America, western coast of Mexico, and Asiatic Russia. The home market is a steadily growing one, and with the steady growth of population, paper demands may reasonably be anticipated. The long distance from the eastern mills and the high freight rates make competition from the east impossible. Japan probably furnishes the greatest possibilities for the future, the yearly imports of paper averaging over $2,000,000 and that of pulp being about $6,000,000. Both the demand for pulp and paper in Japan is increasing very rapidly, and the pulp mills of this province will be in the best possible position to supply it.

At the present time the Australian market is, perhaps, the most important. There are no suitable pulping woods on that continent and few water-powers, so that Australia is almost wholly dependent upon outside sources for its supply of paper. Under normal conditions the United Kingdom, European and United States markets offer a wide field for the products of the British Columbian pulpwood forests.

The local British Columbian market amounts to about $250,000 per annum in news and wrapping paper; while Seattle, Calgary, Edmonton and other prairie towns are being supplied by British Columbia mills.

The total outut of chemical wood pulp in British Columbia will be about 200 tons per day, or 60,000 tons per year of 300 days; and of paper, 335 tons per day, equal to 100,000 tons per

year. The companies engaged in the industry have an aggregate capital of $22,000,000, and 2,500 men are directly connected with the industry.

The industry is only in its infancy, but these figures are a fair indication of the substantial growth which may be expected with the return of more stable conditions after the war. At present the indusry is hampered somewhat by reason of the lack of cargo space for export shipments.

We have immense quantities of paper-making woods. The rapid denudation of the pulp areas of the United States will soon compel it to look to Canada for its supply of wood pulp, which, according to the regulations now in force in the province, must be manufactured in British Columbia. Along the coast line of the mainland and Vancouver Island there are practically inexhaustible areas of pulpwood. South of Knight's Inlet the most abundant wood is Douglas fir, which is successfully used for the manufacture of chemical pulp. Its suitability for mechanical pulp is not so certain.

Another important point is the climate of British Columbia. The mildness of the winters admits of operations being carried on all the year round. The forests of the province are much more densely wooded than those of eastern Canada, 500 cords per acre being not uncommon, while from 100 to 150 cords may be taken as a fair average of good timber lands. With proper husbanding the forests are practically inexhaustible for pulpwood purposes.

In 1901, to encourage the establishment of the paper-making industry, the Government granted twenty-one-year leases of pulpwood forests to *bona fide* applicants on liberal terms, and several companies were formed to take advantage of the concession. The annual rental to be paid under these leases is two cents per acre and a royalty of twenty-five cents per cord of the pulpwood cut. The lessees are bound to build, equip and operate in the province a mill with a certain daily output. The merchantable timber on the leaseholds may be cut and manufactured under special timber license.

Canada's Milling Industry Works to Capacity

The Dominion Is Still Exporting Wheat, But She Is Exporting a Far Greater Proportion of Flour to Wheat Than She Ever Did Before, with the Result that the Milling Industry Is In a Flourishing Position

By B. B. COOKE

TWO Canadians were boasting about their country and its great wheat export trade, when the brusque Englishman to whom they were talking interrupted with a wave of his hand.

"Look here," he said, "that's nothing to boast about. To me it is almost shameful. One of the underlying causes of the great war is the need of the older countries for raw materials. A raw material to them is the means of making great cities, employing thousands. To you, apparently, it is only something to export to them as fast as you can dig it out of the ground."

"But we must—to keep alive!" objected one Canadian.

"Of course, you must. But what shocks me is the fact that you do not appear to realize the essentially temporary nature of such a policy. You Canadians don't seem to realize that you must adjust your trade policy sooner or later, so as to reduce the export of your raw materials and increase the volume of your finished materials. At present," he smiled indulgently, "you make me think of savages boasting of the number of pelts they have sold for a few beads. You Canadians are in danger of forgetting that you are exporting what all the world wants you to export—what half the world cannot get except from you—and what cannot be replaced easily, if, indeed, it can be replaced at all—RAW MATERIALS! And you import—the result of the labor of foreigners."

"What should we do? Stop the export of wheat?"

"Oh, no—but build up higher every day, the export of the finished product of wheat."

"You mean flour?"

"No—not altogether: goods made by Canadian labor; or, in other words, the products of Canadian skill and industry fed on Canadian bread, from Canadian flour, from Canadian wheat!"

"Utopia!" sneered the first Canadian.

"Certainly; but a Utopian idea of practical worth, since it expresses an ideal, something to work for."

"Rubbish!" said the second Canadian.

"No. Not rubbish at all. When you can tell me that Canada produced so many millions of wheat, making therefrom so many barrels of flour—and that you hadn't a barrel left from your own table for export—THEN I will believe there is something remarkable about you!"

II.

In the history of the flour trade in Canada in the last four years there is more cause for congratulation to Canada than in all the "wonderful" years before the war when Canadian wheat was dumped on the Liverpool market with about as much merchandizing skill as the old-time Iroquois displayed when he brought all his pelts to market at once. Canada is still exporting wheat, and will do so for many years to come, perhaps; but especially since the war began she is exporting a far greater proportion of flour to wheat, and exporting still more of it in the shape of shells and other manufactured goods, which are just as surely made of wheat as wheat itself is made of earth. The flour mills of Canada are working to capacity. Despite labor shortage and the transportation difficulties brought about by the war, the flour mills of Canada are in excellent condition. In the early days of the war there was trouble because wheat prices had not been fixed. Some firms, after appealing to the Government to fix prices, were forced in self-protection to buy all the wheat they could in advance. Thus, when wheat prices soared and other mills, producing flour from high-priced wheat, were compelled to raise prices, the foresighted firms were in the position of having to break the market and close down their competitors by selling flour made from cheaper wheat at cheap-wheat prices, or selling at dear-wheat prices, leaving their competitors in existence, and reaping the unavoidable profit of such a transaction. One firm at least found itself in this position, and was forced to refrain from under-selling its competitors at the request of the authorities, who insisted that every mill must be kept running. Thus it made an enormous profit which it had not sought—and was jumped on by the newspapers accordingly.

In the early fall (September) the price of wheat was finally fixed. Since September 12th, there has not been any increase in the prices of Canadian flour. There have been increases to the millers' costs, as, for example, the increase in all-rail freight rates over lake and rail. This difference was absorbed by the millers themselves. In October the Food Controller conferred with the millers with a view to fixing prices. This has never proved necessary, as the above statement attests. One side of the milling trade which has been affected by the direction of the Food Controller is the feed market. When the millers met the Controller the question of keeping Canadian feed at home for Canadian cattle-growers was raised. It was claimed on behalf of the farmers that they could not buy the feed in large enough quantities, and that much of it was being exported to the United States. This statement was proven to be too general. High prices in the States naturally attracted some of the by-product of Canadian flour mills, but not much. Since the price for feed in the United States has been fixed at about the same point as prevailed in Canada, there is no tendency to export. To make assurance doubly sure, the edict of the Food Controller provides that where no local market for Canadian feed can be found it may be exported under license, the Government of Canada, however, reserving first call on it. No license has been necessary so far.

III.

The milling trade had, of course, been steadily growing in importance in Canada long before the war. The four hundred mills in 1900 had become 1,141 by 1910—and all of them larger and better mills. The $14,500,000 capital in 1900 had become $42,900,000 in 1910. The value of the output in 1900, $31,835,873, had increased by 1910 to $81,735,381. The amount spent in wages had practically doubled in that period, and the money value of the wheat used as raw material had risen from $26,300,000 to $57,200,000! Interesting speculations might be written about these figures. The difference between the cost (wheat plus labor) and value of product represented 12 per cent. of the cost (thus estimated) in 1900, and THIRTY per cent. in 1910! Since the capital employed in 1900 was only about one-half the total cost, it is fair to assume that the gross earnings were something like 6 per cent. that year. In 1910, by the same method of reasoning, it is made to appear that the gross earnings were nearer 30 per cent on the cost (labor plus cost of wheat). Such conjecture is, of course, of little value except in so far as it leads thoughtful persons to explain the new factors lying behind the 30 per cent. gross earnings.

The figures for 1900 and 1910, however, pale beside the figures showing the volume of the milling trade in recent years. The reports of the value of wheat flour exported are scarcely satisfactory—though interesting—on account of the fluctuation in prices prior to the fixing of the price of wheat last September. It is worth noting, however, that from an export of $1,631,456 in August, 1914, we climbed to an export of $4,281,602 in December, 1916. The average export price in 1916 was $5.59 per barrel as against $4.26 per barrel in 1914. It will be seen, therefore, that the increase in the value of shipments for December, 1916, over August, 1914, is not entirely explainable on the ground of increased values. It is also worthy of note that while the increase in the average export price of wheat flour in 1916 as compared to 1914 was $1.33 per barrel, or 31 per cent., the increase in the export value of a bushel of wheat over the same period was 12.2 cents, or 97.8 cents (1914 average export price), or 12 per cent.! This is certainly a valuable indication of the enhanced value of finished over raw materials in war time.

So far as quantities are concerned, railway statistics show that 1,709,464 tons "originated on Canadian lines in 1916," while 543,442 tons came in by American roads, presumably for export or for special purposes. The total tonnage handled by the Canadian roads in 1916 was 3,184,922, as compared to 2,514,000 in 1915, and a bare 1,400,000 tons as far back as 1907.

IV.

The flour trade as against the mere grain-growing business is increasing. The goal cited by the Englishman is still a long way off, but not so long as it was once.

CLAY PRODUCTS MANUFACTURERS.

Sixteenth Annual Convention Will be Held at the Prince George Hotel, Toronto, January 29-31.

The Canadian National Clay Products Association will hold their sixteenth annual convention at the Prince George Hotel, Toronto, on Tuesday, Wednesday and Thursday, January 29, 30 and 31. The following is a list of papers and addresses to be given at this convention:

"The Workings of the Workmen's Compensation Act and How Assessments Are Determined for the Different Classes," by Samuel Price, chairman of the Workmen's Compensation Board of Ontario, Toronto.

"The Relation of the Economic Geologist to the Clay Industry," by N. B. Davis, B.Sc., M.A., Kingston.

"Kiln Konstruction Kinks," by W. G. Worcester, secretary of the Alberta Clay Products Mfrs. Association.

"Burning by the Use of Forced Draft and Low Grade Fuel," by W. G. Worcester.

"Features of Construction of a Big Brick Factory," by A. F. Greaves-Walker, Maryland, manager of the American Refractories Co., Baltimore, Md.

"Manufacture of Floor and Wall Tile," by Jas. McCabe, ceramic engineer of the Frontenac Floor and Tile Co., Kingston.

"Producer Gas-fired Dryers," by R. H. McElroy, International Clay Machinery Co., Dayton, Ohio, based on experiments by Profs. Parmalee and Hursh, at the University of Illinois.

"Electric Motors in the Brick Industry," by K. C. Berney, B.Sc., Canadian Westinghouse Co., Hamilton.

"Tile," by Prof. W. H. Day, B.A., Ontario Agricultural College, Guelph.

"Motor Trucks in the Brick Business," by Angus German, manager Sun Brick Co., Toronto.

"Sewer Pipe Manufacture," by F. Coleman, M.B., of the Hamilton and Toronto Sewer Pipe Co., Hamilton. Discussion opened by Andrew Dods, of Ontario Sewer Pipe Co., Mimico.

"Brick Manufacture," by L. L. Plant, Georgetown.

"Refractory Materials in Canada," by Joseph Keele, B.Sc., chief engineer, Ceramic Dept. Mines Branch, Ottawa.

In addition a large number of questions will be introduced for discussion. Included among these are: (1) What can be done to stimulate tile production? (2) Best method of artificial drying for small manufacturers; (3) Kiln ideas to conserve coal; (4) Relation of furnace level to kiln floor; (5) Comparison of N.S. and U.S. coal for firing refractories; (6) Market in Canada for refractories; (7) Is it cheaper to use crude oil (as fuel) than coal? (8) What are the prospects of the clay products manufacturer after the war?

The annual banquet will be held at the Prince George Hotel, Wednesday night, January 30, with Joseph Russell, M.P.P., as toastmaster.



Sulphite Mill of the Bathurst Lumber Company

The Growth of Our Third Greatest Industry

With the Enactment by the United States of Reciprocity Legislation in Regard to Pulp and Paper, Immediate Encouragement Was Given to Canadian Manufacturers, and the Industry Has Enjoyed Splendid Growth

By A. L. DAWE

Secretary, Canadian Pulp and Paper Association



A. L. Dawe

IT is remarkable that a great manufacturing industry, the third greatest in the Dominion of Canada, may be said to have arisen within the memory of the youngest business man; yet such is the case with the pulp and paper industry.

Production.

Figures under the best of circumstances are tiresome to the busy reader, yet we cannot refrain from drawing your attention to the following statistics given from the admirable census of Canada compiled by Mr. R. H. Coats, Dominion Statistician:

	1910	1915	1917
Number of Paper Mills.	35	48	
Capital	$23,104,560	$86,110,566	
Wages Paid	2,895,717	7,574.866	(Estimated)
Value of Products	14,109,014	29,395,535	$45,000,000
Number of Pulp Mills..	37	32	
Capital	$30,782,373	$47.626.237	
Wages Paid	2,162,290	2,946.057	(Estimated)
Value of Products	9,117,465	10,952 466	$28,000,000

This affords a worthy example of Provincial Government wisdom in prohibiting export of raw materials and thereby encouraging the production of the finished article.

Reviewing the forests of Canada as a whole, it will be found the largest areas are spread over that vast territory watered by the Ottawa, the St. Maurice, the Saguenay and their tributaries—over 100,000 square miles in extent. Other timber limits are found in the Georgian Bay country. Far west, in British Columbia, spruce abounds, and Douglas fir is widely distributed over these regions. The Eastern Townships and the south shore of the St. Lawrence to the Gulf, the region of the north shore of the St. Lawrence, and the country watered by the St. John, the Miramichi and their tributaries are all well supplied.

From the nature of these great forest areas, Canada is best fitted to undertake the production of mechanical wood pulp, pulp made by the sulphite process and sulphate or "Kraft" pulp, which are used in the manufacture of book paper, writing papers, newsprint paper and wrapping paper of all kinds, together with a host of other kinds of paper, boards and paper products, demanded by the requirements of the high state of progress in which we live.

Prior to 1911 the way of the paper manufacturer was hard, as the small Canadian market did not tend to encourage production on a sufficiently large scale to enable the mills to compete in the world's markets. Indeed, to-day it is only possible for highly specialized plants to hold their markets against the competition of large manufacturers in other countries.

With the enactment by the United States of reciprocity legislation in regard to pulp and paper, immediate encouragement was given to our enterprising manufacturers by the opening of the world's greatest market—the United States of America.

The exports of paper to all parts of the world have grown from $3,885,881 in the year ending March, 1912, to $26,123,215 in the year ending March, 1917.

The exports of chemically prepared wood pulp to all parts

of the world have grown from $1,587,535 to $14,032,920 in the same period. The exports of mechanically ground wood pulp to all parts of the world have grown from $3,506,770 to $6,371,133. Or a total increase in five years of $37,547,082 in pulp and paper.

160 Carloads Shipped Per Day.

These statements are full and complete answers to those who hold that our forests should be thrown open to all-comers, to be denuded of pulp wood in the raw state. All honor to those far-seeing statesmen who have helped in the building of such a vast industry by the enactment of wise legislation, forbidding the export of unmanufactured wood from Crown lands.

The natural market for our pulp and paper is in the great republic to the south; and this wonderful development of the publishing business and the importance of prompt and widespread distribution of news and knowledge, has increased the demand for paper to such an extent that 160 carloads of pulp and paper leave Canada every twenty-four hours. In addition to this must be considered the great cargoes that leave our ports for all parts of the world.

A fortunate phase of existing conditions is that while in England, France, Italy, Germany and other European countries the respective Governments have been forced to step in and make provision for the rationing of paper to the various newspapers and periodicals, we in Canada and the United States have not suffered from famine, if one may judge from the voluminous daily and weekly papers—sold until recently for one cent; and unless the incentive to production is hampered by restrictive legislation, there will be no lack of this commodity.

The developments of the past few years have led to co-operation in the fight against the great enemy *fire*, and co-operative fire associations have been formed in all provinces to combat this menace; and with the help of the provincial authorities and the educational work of such associations as the Canadian Forestry Association, has actually changed public opinion in five years. No longer is the "dropped match" a careless action—it is a crime.

The future development of this industry may be considered in ratio to the steps taken to safeguard our supplies of raw materials. Our forests are not inexhaustible, but, with intelligent handling, may be made practically so.

If one were to suppose the Pulp and Paper Industry as a vast corporation controlling all pulp and paper mills, and were to be present at the annual meeting, some interesting information would be gleaned from the reports of the various officials.

Plants Taxed to Capacity.

The vast increase in the demand for news, coupled with the phenomenal rise in advertising that has taken place in Canada, has meant a great increase in the volume of sales. Production has kept pace, but only by taxing all plants to capacity and over. Under normal conditions the infallible law of supply and demand would by reason of good prices have provided for new mills and greater production. Short-



Laurentide Company's New Power Plant at Grand Mere

sighted policies of price-fixing have held back capital from investment, with the result that no new mills are in course of development.

Violations of economic principles are followed by reaction, as may be witnessed in the coal calamity facing the United States at the present time.

So, too, in the case of newsprint, the low prices paid by the Governments of Uuited States and Canada have discouraged production in mills having high costs, thereby removing from the market a large amount of tonnage which under a high price would have been available, together with the products of new mills built to take advantage of generous returns.

The year 1917 has made every manufacturer realize that we are very much interested in the United States, as may be witnessed by the great difficulties experienced in securing supplies of chemicals necessary to the paper trade, not to mention the coal situation, which is familiar to all.

It has had a good effect in making us look long and earnestly into the possibility of utilizing our own raw materials.

From the nature of the locality of most paper plants, labor and transportation are two outstanding problems. The war has withdrawn at least 2,500 men from the paper trade who have had to be replaced with inferior and in many cases unskilled help.

The Canadian car situation, with its ever-increasing debit against the United States, has not added to the joy of the Canadian paper mills, often placed in localities where but one line serves and in its own townsites, where empties must be hauled.

Advocates Georgian Bay Canal

Vice-President of the Port Arthur Board of Trade Issues a Statement Giving Reasons Why This Scheme Should Be Prosecuted

That a Georgian Bay Canal offers the only national, economic and patriotic solution of our transportation problem is the opinion of Mr. Joseph Redden, vice-president of the Port Arthur, Ont., Board of Trade, in a lengthy statement on the subject just issued. He points out that the returns recently published by the grain commissioners of Canada of the amount of grain handled at our great inland lake ports of Port Arthur and Fort William for the crop year period ended August 31st, 1916, indicate to what large proportions the flow of grain through these ports has reached. The report shows that approximately 370,000,000 bushels of wheat, oats, barley and flax were shipped, 40,000,000 bushels by the all-rail routes and 330,000,000 bushels by vessel. "But although the total figures are very gratifying, and illustrate the wonderful development of Canada's western provinces," says Mr. Redden, "there are features in the report which are far from gratifying, and which cause great disappointment and uneasiness as to the future of Canada's transportation interests to all who have the interests of Canada at heart.

"It shows that, while able to produce this great volume of grain that sought its exit through the terminals of Port Arthur and Fort William, Canada lost the control of its transportation to the seaboard after leaving these ports, for out of the 330,000,000 bushels shipped by vessel 193,000,000 bushels, practically 60 per cent., were carried to United States lake ports, thence by United States railroads to United States seaports.

"Of this vast amount sent to United States lake ports, 21,000,000 bushels were carried by Canadian vessels, showing that it was not on account of an inadequacy of Canadian vessels that prevented more of the grain being sent to Canadian ports, but that the present Canadian route to the sea is outclassed by the United States route."

Mr. Redden then asserts that Toronto and the other cities on Lake Ontario were fully aware of the inferiority of the Welland-St. Lawrence route, "but were willing to jeopardize Canada's prosperity in her shipping and transportation interests for a highly improbable local aggrandisement." He adds that Canada gives to the United States, free of cost, the key to our water transportation system, and that we have at present no permanent coasting trade for our vessels.

"The development of the Georgian Bay Canal," says Mr. Redden, "places Montreal in direct competition with Buffalo, making possible from the Canadian head of the Great Lakes a water route of 934 miles to Montreal, against the approximately 850 miles to Buffalo, with direct connections in Montreal during the summer with ocean shipping, and with a rail haul to Atlantic seaports for winter delivery for storage grain equal to less than that from Buffalo."

Views of Mr. Lanigan.

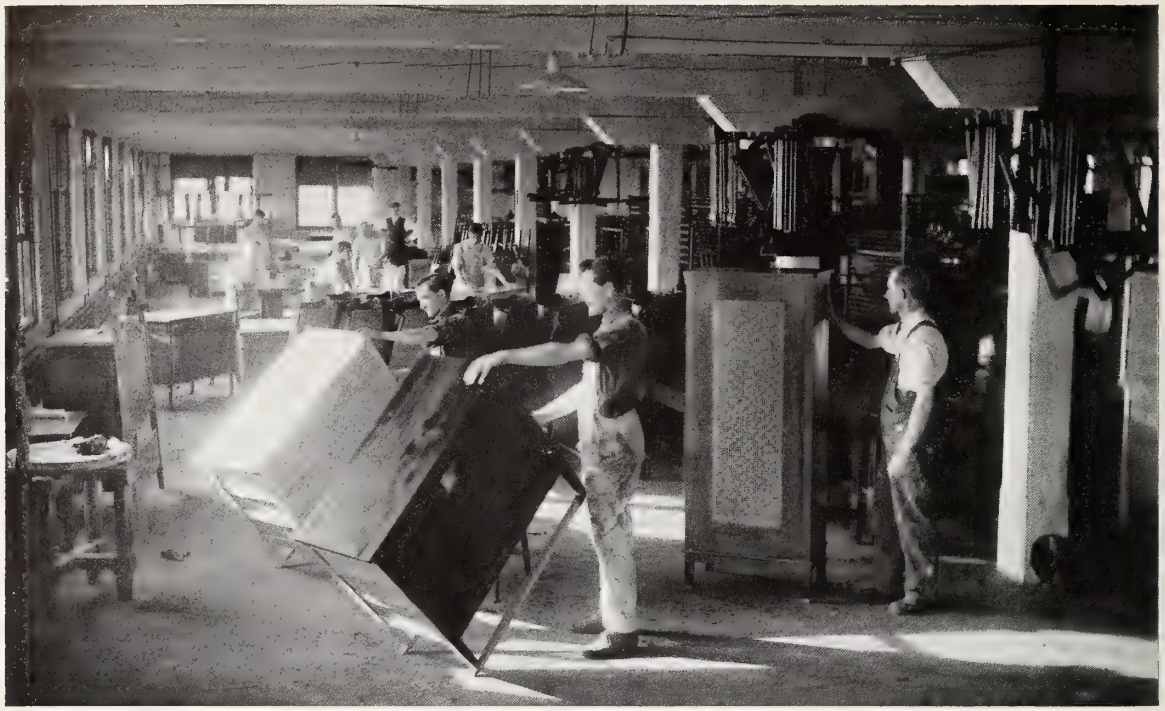
The statement concludes: "The solution of the freight problem of the west will not be the Panama Canal, of which so much is expected by some, but of which route Mr. Lanigan, traffic manager of the Canadian Pacific Railway, in an examination before the Railway Board at Ottawa four years ago, said: 'If it (the grain) was carried free to Vancouver for export, it would not result in a trade being developed under present conditions, owing to the high cost of sea carriage and insurance.'

"There are other factors in the handling of grain that will be against the routing of grain to Europe via the Panama route which are not necessary to enumerate, Mr. Lanigan's evidence being all-sufficient.

"The Hudson Bay route also will, in the minds of many who are thoroughly conversant with the grain trade in its many phases of handling, be always handicapped by the climatic conditions existing on that route, conditions which will prevent the certainty of delivery in Europe of grain shipped from the west in all but a few months in each year. There are some who talk of all-the-year navigation by the Hudson Bay route, but those who know the hardships and dangers of December navigation on Lake Superior realize that winter navigation on the Hudson Bay route, the channels leading to which are over 1,000 miles further north than the Great Lakes, is a dream.

"The great solution of the western freight problem will be simply adequate rail connections with the twin ports, Port Arthur and Fort William, on Lake Superior; to all intents and purposes, the final market to the western farmer for the selling of his grain, there to connect with a deep waterway, practically an ocean highway, which, for nearly eight months of each year will carry cheaply the millions of tons of European-bound freight of Western Canada and the United States."

Puget Sound will be the directing headquarters of the Foundation Company in the United States, according to reports received from Seattle. The Foundation Company, Limited, which is building ships in the Inner Harbor at Victoria, B.C., for the Imperial Munitions Board and Dominion Government, is associated with the parent firm, which has its head offices in New York. A report says that the Foundation Company plans building twenty vessels each at Portland, Tacoma and in British Columbia. The company, in addition to its activities in Victoria and New York, is engaged in building ships at Portland and Tacoma, and the general supervision of those plants will be through the newly established offices in Seattle, which is an intermediary point between the yards already established.



Workmen putting the finishing touches to furniture in a Canadian factory

Conditions in Canadian Furniture Industry

With Building Operations Practically at a Standstill for the Past Four Years, the Sale of Furniture has Kept Up Remarkably Well, and the Outlook is Satisfactory

By J. R. SHAW

Managing Director, Canada Furniture Manufacturers, Limited

OWING to the depression in the West in 1914 the furniture industry was not in a prosperous condition when war was declared in August, and this condition continued throughout the whole of the year, the output of the factories being very seriously affected.

It was not a question in 1914 of procuring labor, but rather of being able to provide employment for our employees, and a great many of the furniture manufacturers went out after orders for shell boxes in order to assist them in keeping their organization together. There is no question but that the shell box orders in 1914 and 1915 materially assisted the industry, which suffered for want of buoyancy during the whole of 1915.

There has been practically no increase during the past four years in the factory capacity of the furniture industry. As near as I have been able to judge, the number of hands employed is about sixty per cent. of those employed in 1913, and we see no immediate prospect of the number of hands being increased.

How Prices Have Risen.

Materials used in the construction of furniture were cheaper in 1914 than they had been from 1911 up to that date. In 1915 prices commenced to rise, and have steadily climbed since. The greatest advances have taken place during the year 1917. About four months ago the following table was compiled. This table shows what could be procured for $100.00 in 1914 and how much money it would take to purchase the same quantity of materials in September, 1917:

Material.	1914.	1917.
Lumber, Hardwoods	$100 00	$135 00
„ Box Pine	100 00	145 00
Veneers	100 00	170 00
Leather	100 00	172 00
Brass Goods	100 00	285 00
Coppered Steel Wire	100 00	155 00
Screws	100 00	290 00
Nails	100 00	190 00
Sand Paper	100 00	172 00
Methylated Spirits	100 00	162 00
Benzine	100 00	230 00
Shellacs	100 00	340 00
Stains	100 00	750 00
Glue	100 00	265 00
Coal	100 00	175 00
Mirrors	100 00	172 00
Coverings	100 00	175 00

The effect of enlistment was materially felt by the furniture manufacturers in Ontario in 1915 and 1916, but the furniture manufacturers have suffered from other causes of shortage of skilled labor than the war, namely, from the automobile industry. The automobile industry is an industry that has grown up within the past five or six years to tremendous proportions. This industry never trained its help, but has drawn its help from the skilled labor in other trades,

noticeably from the furniture industry, upholsterers, finishers and cabinet-makers. As the automobile industry was able to pay higher wages, the labor situation in the furniture industry was very seriously affected.

With respect to transportation, I cannot say that our industry has suffered very much for cars for outgoing shipments, as the railway companies have special, large cars for the furniture industry which are not suitable for other lines, and on the whole the industry has been very well taken care of by the railways, although, of course, there have been many annoying delays in incoming raw materials.

The great markets for furniture in Canada are Toronto, Montreal and Winnipeg. These markets have maintained their position very well. The great slump that took place was mainly in the rural districts West of the Great Lakes, but since midsummer, 1917, there has been a very marked improvement in the West, and orders are coming in quite freely now from Alberta, Saskatchewan and Manitoba, though British Columbia is still a slow market.

Values have steadily increased, but owing to the number of small manufacturers in the trade, who don't watch as carefully as they should the upward trend of values of the basic materials used in the industry, they have not realized soon enough the necessity of higher prices, and the tendency has been to raise the selling prices of furniture as the advances in the materials used compelled the raise, instead of anticipating what must happen. To-day the selling prices of furniture are not as high as they should be when compared with other lines of manufacture. My own opinion is that the industry, if it is to maintain itself on a level with other great industries, must get away from the idea that the trade is a cheap trade. I am firmly of the opinion that the time has arrived when our workmen must receive as high wages as are paid in the iron industries if we are to succeed in attracting a desirable class of mechanics, and to do this the standard of furniture values must be raised, and raised permanently. This is as it should be, because the raw material, namely, woods of all descriptions, must constantly increase in value.

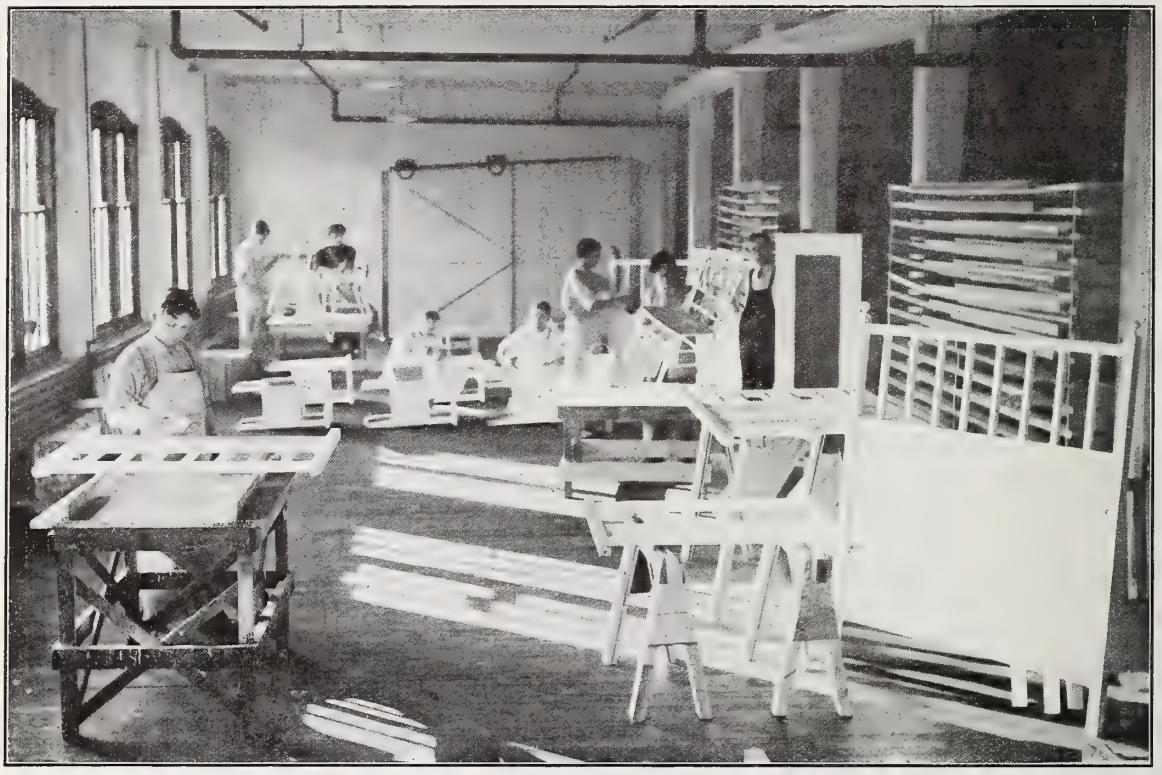
The outlook for the future is very good. It has been a surprise to a number of manufacturers how much furniture has been sold when building operations have been practically at a standstill for the past four years. A revival of the building industry will give a great impetus to the trade in Canada.



The machine flat in a big Canadian furniture factory

I have not much faith in the export trade. There are a few lines, such as bent chairs, that can be exported profitably, but not much else.

A great problem which faces the industry, to my mind, is the necessity of the manufacturers of furniture instituting adequate costing systems and basing their selling prices upon cost. Too many of our manufacturers have made goods at certain prices because their competitors were making goods at these prices, without really knowing whether they could produce goods at these prices with a profit or not. The industry is one of those industries in which it is not difficult to make a start; that is, a mechanic with a small amount of capital and no business training, with a



In the enamelling room of a Canadian Furniture Factory

few machines, can get started on making some simple article, and in nearly all cases of this kind these proprietors have not made proper provision for overhead and depreciation.

Owing to the scarcity of labor, labor-saving devices are being rapidly installed by our leading manufacturers, and it is surprising with the scarcity of labor how well we have been able to get along.

A look over the catalogues of the leading furniture manufacturers of Canada and a comparison made with those of the leading manufacturers of the United States, would show that we are producing here in Canada furniture equal to the best of the standard lines made anywhere in the world. During the past ten years there has been a very marked advance in styles and construction. The buying public now take an interest in adaptations of period designs, and it is surprising the knowledge that is possessed by the buying public of the different styles of furniture. It is a pleasure and a matter of pride to a Britisher to know that all the leading styles are the product of the brains of English artists—Sheraton, Hepplewhite, Adam and Chippendale.

Exhibitions of New Lines.

Twice a year the leading manufacturers make exhibitions of their new lines, namely, in January and midsummer, at such furniture centres as Toronto, Kitchener and Stratford. The leading buyers in the centres are fast adopting the United States method of visiting these semi-annual exhibitions, looking over and studying the various lines and placing orders for the ensuing six months. This is a great advantage both to the manufacturer and the buyer over the old method of buying from photographs from day to day as required.

Before closing, I might just say that notwithstanding that Canada has the name of being a wooden country, a great bulk of the wood used in furniture manufacture is imported, our native woods being only suitable for the commoner goods.

AGAINST EXPORT OF POWER.

City of Montreal Takes Action to Prevent Exportation of Power to Aluminum Co. of America.

The Board of Commissioners and City Council of Montreal will petition the Federal Government and Quebec Legislature against the exportation of electric power from Canada to the United States. Commissioner Villineuve, who is presenting the petition, says: "Whereas, it is not generally known that from the Cedars Rapids Power, which is developed entirely from Canadian waters by the Civic Investment and Industrial Company (the Montreal Light, Heat and Power Company), a permit has been granted by the Dominion Government for the exportation of 75,000 to 80,000 horsepower to the Aluminum Company of America at Messina, N.Y.; whereas, the Cedars Rapids is capable of a development of approximately 200,000 horsepower, and the quantity of power contracted for as above represents about two-thirds of the present power is particularly prejudicial to the interests of the citizens of Montreal, as, if that quantity were put on the market for home consumption it would tend to bring the rates for this commodity to a more reasonable level, and, apart from placing this utility within the reach of a large number of our population, would tend to foster and encourage manufacturing industries in Montreal and the surrounding districts."

An Ocean Merchant Marine for Canada

The Establishment of a Canadian Ocean Merchant Marine is Alike a National Opportunity and a National Obligation

By J. W. NORCROSS

Director of Ship Construction, Department of Naval Service

(Reproduced from January "Canadian Magazine")

THE establishment of an ocean merchant marine is the most important domestic question before Canada today, for the continued prosperity of the Dominion will depend very largely upon our ability to ship our products to the markets of the world. This we cannot do unless we have the ships, and it would seem that the only way we can be assured of them is to follow the example of the United States and build them ourselves.

The people of Canada must be awakened to the urgency of this problem, and to its vital bearing on the future prosperity and development of our country. The extraordinary business expansion of Canada in the past year or two has left us somewhat complacent perhaps as to the future. But we must remember that this expansion has been due wholly to our participation in the war on the side of the Allies, and is not a normal development. In three years' time we have become a lending instead of a borrowing nation, and our foreign trade balance sheet has turned tremendously in our favor. This happy condition might not have been effected in peace times in twenty years.

Canada Must Develop Exports.

But what about the future? It is all very well to be optimistic, but facts are facts, and we cannot overlook them. Personally, I have always been a firm believer in the importance of foreign trade to the prosperity of any country, and I am one of those who is firmly convinced that Canada can develop her export business to enormous proportions. But I realize only too well that such development can be possible only if she has the ships to carry that business. Now suppose the war were to end with Canada having made no attempt to establish a merchant marine of her own? What would happen? There would be a demand for tonnage such as the world had never known. Freight rates might be tremendously high, and the markets offering the best returns would get the ships. Ocean transportation in normal times is based on carriage of cargo in both directions; that is to say, the owner wants assurance that if he carries a cargo in one direction he will be able to get a return charter at an accessible point, and not have to run thousands of miles in ballast. Now, Canada's freight is mostly of the bulk variety, the class carried in peace times by the so-called tramp steamer. But an export trade in raw products never made any nation wealthy. We must supply transportation for our manufactures. We have a certain tonnage now, but only through grace of the Admiralty. This tonnage probably will not be available after the declaration of peace. Great Britain, through mines, submarines, and marine risks, is losing ships faster than she can build them, even with her yards working night and day to meet the demand. Out of a total tonnage of some twenty million, Great Britain will have lost at least five million tons through the agency of the submarine alone by the end of the current year. This will represent the result of only one year of submarine frightfulness, and will not take into account the losses in the first two and a-half years of the war, when such mighty liners as the *Lusitania* and the *Arabic* were sunk. In making this statement, I am not attempting to predict what the net loss of British tonnage will be when the war is finally concluded, but merely wish to show how a depleted tonnage will affect Canadian interests. Great Britain's foreign trade is world-wide, and if she is to retain it she will have to bend every energy toward that end, and this in the face of the greatest competition the world has ever witnessed. In South America, for instance, where before the war Great Britain and Germany had a practical monopoly, the United States will be a sturdy competitor, for she has improved the past few years to splendid effect in that field. This will mean that to retain the trade of the southern half of this hemisphere, so important to her merchants, Great Britain will have to divert a large portion of her merchant fleet to South American waters. And the same condition will apply also to other countries, especially those supplying raw materials for British mills, such as the United States and Australia.

What, then, will be the position of Canada? There will be a certain tonnage to the St. Lawrence, of course, but will the available freight tonnage, especially that of the tramp character, to care for the mighty export business of the Dominion be forthcoming? For one, I do not think so.

That is why I think the Government of Canada has a profound duty to establish a merchant marine that will make the Canadian farmer and manufacturer independent to a degree at least of the foreign shipowner for the carriage of his products.

This merchant marine, in my opinion, should be built in Canadian yards—for we have yards in Canada sufficiently equipped to build a considerable fleet. This would not only supply work to the existing yards, whose wonderful development in the past two years has been due almost wholly to Admiralty requirements, but would afford a new field of endeavor to the manufacturers of munitions, and continued employment to the thousands of skilled workers who have been very largely the product of that great war industry.

Raw Material, Vital Need.

The vital need of the Canadian shipbuilding industry today is raw material. At the present time there are no steel mills in Canada for the manufacture of plates, channels, or angles, the reason being the total inability of the domestic steel industry to compete with his American competitor. The Dominion Iron and Steel Company did attempt to erect a plate mill at Sydney, but finding it absolutely impossible to make it a commercial success were compelled to sell it back to the United States. The product of that particular mill is now being sold in Canada. The workmen who made the product, however, are Pittsburgers, not Nova Scotians. How best a steel industry, to supplement the shipbuilding industry, could be developed, I am not prepared to say, but any reasonable subvention would be justified. Perhaps the most effective method would be to order a certain amount of material over a period of say ten years at a figure that would justify a fair profit on output and render the investment in such plants absolutely safe; meaning, in other words, that if

a certain plant were not required after ten years it could be dismantled without financial loss to its builders.

The upbuilding of a Canadian merchant marine is both a national and an imperial obligation, and it is one, in my opinion, that the Government should waste no time to put into effect. This can best be done by the establishment of a commission along the lines of the National Shipping Board of the United States, which should be empowered to consider the merchant marine question in all its phases, to construct or purchase ships, and to do anything else that promised to rehabilitate the once important ocean marine of Canada. The ships constructed should be built on a programme that promised continuous activity to existing Canadian yards for at least ten years, and the fleet established, whether by purchase or construction, should be capable of carrying at least sixty per cent. of the foreign trade requirements of the country, which is the percentage of British trade carried by British ships before the war.

To Private Owners After the War.

Until the declaration of peace these ships should be operated under Government control, when they should be sold to private interests at prices determined as equable to all concerned. For public operation of ocean carriers has never proved practicable, and never will. The reasons for this are self-evident. Successful ship operation lies pretty much with the personnel of the company operating. Private enterprise will always reward talent, and talent will go always where its services will be most recognized, except, of course, in times like the present, when many of the biggest men in the various countries at war are lending their services to the public at great personal sacrifice. But in ordinary times big brains cannot be tempted by the moderate salaries that are paid to government officials. And the government of no country can pay large salaries, as the people would not tolerate such a policy for an instant. Government operations of any character always deter private enterprise, as these operations can be carried on at a loss—another reason why the maritime nations have always preferred to encourage private enterprise by preference or subsidy instead of entering the field in their own behalf.

Why should the ships for the proposed Canadian merchant marine be built by the Government, when the conditions for shipbuilding at present are so favorable? will be, no doubt, a question that will occur to the layman who is uninformed as to the actual conditions. To understand the reason for this we must remember that the shipbuilder and the ship operator are entirely different people, just as distinct, in fact, as the builder of railway equipment and the operator of railways. The intrinsic value of a ship is not the value of the elements that have entered into her construction, but is governed wholly by the earnings she makes on the investment. These are abnormal times, and call for emergency measures. Thus ship construction at present high rates, even though the prevailing high freight rates might seem to justify it, is in a sense speculative. It is impossible to predict for how long the charges on ocean freight will remain high after the war, but it is self-evident that even if there is not a sudden break in the market after the declaration of peace, there will be a gradual decline to pre-war levels, particularly if the struggle is prolonged to a date that will witness the consummation of the shipbuilding programme of the allied governments and of neutral nations, such, for instance, as Norway, which last year expended nearly $200,000,000 in new tonnage and this year has an even more extensive programme.

Thus it is not fair to expect private builders to take such a great chance, especially considering the shortage of labor and material. Certainly the Canadian owner is in no position to finance ships without some guarantee, as he has neither the money nor the established business to make such an undertaking feasible.

Free to Trade All Over World.

A Canadian merchant marine, built and operated with government assistance, while primarily serving Canada, would be free to trade in any part of the world, thus adding to the wealth of the Dominion by drawing upon the resources of other lands. This fleet would in addition, of course, increase the material prosperity of the country by finding ready and profitable markets for Canadian products and importing the raw materials needed by the manufacturing industries as well as the so-called luxuries that contribute so much to make life worth living.

A merchant marine so developed would afford Canadian exporters a decided advantage in rates, as take the case of Japan, which besides retaining all its coastal privileges for the benefit of its own mercantile marine, is the second nation in the matter of marine subsidization. Even with present high freight rates, Japanese ports have a 50 per cent. preference over Hong Kong, Shanghai, and Manila. It is said, indeed, that because of national subsidization the merchants of Japan are enjoying pre-war rates, while the Philippine Islands and China are paying more than 100 per cent. over the old schedules.

Another vitally important reason for the establishment of a merchant marine, and one apart altogether from commercial or mercenary motives, is the creation of a trained organization upon which Canada can draw for the personnel of the navy, which, soon or late, she is bound to possess. The most serious problem in creating a navy, or for that matter a merchant marine, is to furnish the necessary complement of officers and men. In this regard Great Britain has been particularly fortunate, but her good fortune can be attributed solely to an unswerving policy of interconnecting the two services. Thus in the present war we find that the fighting forces have had to draw very largely on the Naval Reserve of the mercantile fleets, and to the undying glory of the latter it can be said that they have acquitted themselves with the spirit and sacrifice that are the traditions of the service.

Difficult to Create Organization.

But the creation of an organization in Canada will be more difficult than in Great Britain, where seafaring is the recognized avocation for families whose forbears have followed it for centuries. It has been the experience of every nation that the greatest difficulty in establishing a merchant marine is to make the life sufficiently attractive to induce the youth of the nation to follow it as a profession. Going to sea means giving up all the pleasures and comforts of home, and to offset the loss of these the boy must be promised compensating advantages. This condition is especially true of Canada, where the standard of living is very much higher than in any of the Old World countries and where the social distinctions are less defined. Such a plan has been adopted on the Great Lakes, with the result that at the present time nearly all the officers are Canadian-born, where only a few years ago the large majority were foreign.

Viewed from whatever angle possible, the importance of a merchant marine to the development of a nation cannot be over-estimated. The war has shown that no country can afford to depend on foreign carriers for the safety of its extraneous trade. Thousands of years of peace have proved beyond a doubt that the nations making the greatest development commercially have been those that have developed their mercantile interests. Cobden, the great English economist, once said: "I shall begin to have hopes for Turkey

when I find Turkish ships, built in Turkish dockyards, manned by Turkish seamen, navigated by Turkish officers, and laden with Turkish cargoes, sailing out of Turkish ports." In these days we do not like to point to Germany as an example for anything. But no thinking person can overlook Germany's wonderful record of commercial growth in the twenty-five years before the war. In 1890 three-fifths of all Germany's mercantile tonnage was built in Great Britain. Ten years later, through a far-sighted policy of benevolent consideration, the German yards were constructing all the tonnage required by German owners and catering to foreign business as well. In the same decade, too, British shipping through the Suez Canal decreased from nine million to seven million tons, while that of Germany grew from one and a-half to at least two million tons.

Before the war it was generally recognized that sea power would be the chief contributing factor to victory. That is why both Britain and Germany were working so feverishly on their naval equipment. But it was from the fighting ships that victory was expected, not the humble merchantman. And yet it is the peaceful cargo carrier that is playing the supreme part in the struggle, giving all due credit to the magnificent fighting ships that on constant vigil are holding the enemy at bay. In the war after the war, so called, the merchantman again will have to lead the van, and in my opinion the only countries that will have an even chance will be those who have the ships to send out on the trade routes of the world.

The establishment of a Canadian ocean merchant marine is a national opportunity and a national obligation.

War's Effect on the Canadian Shoe Industry

Difficult Part of the Shoe Business During the Past Three Years Has Been the Constant Uncertainty as to the Immediate Future Due to the Various Causes Outlined

By GEO. A. SLATER
President, Geo. A. Slater, Limited



—B. & C. Press photo.
Geo. A. Slater

WHEN war was declared in August of 1914, the shoe business as a whole was not in a flourishing state. This condition, however, was merely sympathetic with that existing in practically all other lines of commerce due to the reaction after the boom period of 1912-13. For some time after the opening of war, there was little improvement, but in the spring of 1915 came a change; retailers along with manufacturers commenced to buy more heavily than usual in anticipation of a shortage in supplies, and for a year and a half buying continued on a heavy scale. That there was foundation for the belief that supplies would be short there can be no doubt, but at the same time, had it not been for the wonderful impetus given to business by reason of the enormous amount of money spent in this country for munitions, and for food supplies, many retailers would have found it extremely difficult to finance. Exceptional crops in 1916 to some extent were responsible for the prosperity which existed, and the higher prices secured for the crops of 1916 caused the pockets of our farmers to be better lined than ever. The situation though, in the early part of 1917, commenced to change by reason of the Government propaganda instituted and carried out to make the people save their surplus cash and to invest same in Government securities. As a result during the past six months a spirit of caution has pervaded the shoe business, and we find that purchases in many lines have been on a more restricted scale.

In no spirit of complaint, I may say that the unfortunate part of the shoe business during the past three years has been the constant uncertainty as to the immediate future. This probably could not have been otherwise, but with conscription at all times looming before the retailer and manufacturer, both have felt the need for a conservative attitude in placing orders for requirements. A most troublesome feature has been the question of supplies, and to this has been added the difficulty in regard to labor supply as well as the problem of transportation. By all concerned, however, there has been exercised a spirit of tolerance which will undoubtedly go a long way to cement the good feeling between one another. At the same time, it is unfortunate that many consumers fail to realize that his own troubles, due to the war, have also arisen in the shoe business, and therein frequently are magnified. We find the farmer entering a retail shoe establishment and bitterly complaining because the shoes which he bought months previous have advanced in price. He does not seem to take into consideration that the leather which enters into the manufacture of shoes, has come from the backs of the cattle which he has raised and sold at prices much advanced over those paid for the same cattle only shortly before.

Shoe Retailers' Patriotic Spirit.

I mention this merely to illustrate a concrete example of the lack of tolerance on the part of some consumers, and in justice to the retailer, I may say that at no time has he received anything like he should in returns from profits on his stock. Considering the risk involved the shoe retailer has probably found it more difficult to do business than has any other class of merchant, and during the past few years my own investigation has proven to me that the shoe retailer has displayed a most patriotic spirit, filling a niche in the business life of the community with very little thanks. This may be by the way, but I mention it because from now on, the consumer should co-operate with the shoe retailer just as the shoe retailer will have to co-operate with the manufacturer.

No one can safely say what the future may bring forth, but with sources of supply being gradually cut off during the past three years, we find ourselves without the opportunity to get leather and other materials needed in the manufacture of shoes. India and Russia are, so far as the shoe manufacturer is concerned, non-existent, and it was from these two countries that our supply of kid and calf leathers were ob-

tained in past years. The shortage of steel makes it more hard than ever to get the necessary nails and other articles used, which are made from that metal. Cotton and wool used in the linings and uppers of shoes are very high in price, and orders for same are not filled with anything like despatch.

As to leather it goes without saying that the supply of cattle is rapidly decreasing, due to the high cost of feed and other causes, and more people would do well to realize that leather which is a most important article in the making of shoes is a by-product. As to substitutes, during the past three years many manufacturers have seen fit with varying success to use certain substitutes, particularly for the soles, counters and toe boxes. Should the war continue, the manufacturer will undoubtedly be compelled to use more of these substitutes, and doubtless same with the increasing demand will become perfected.

Old Methods Must be Abolished.

The experience gained during the past three years leads to the conclusion that old methods will have to be abolished in the shoe business. Dealers will find it necessary to purchase their requirements on a more intelligent basis. Instead of purchasing in small quantities in each line which they may order, they will have to bulk their sizes so as to permit the manufacturer in turn to conduct his business in a better way. Only by so doing can factory costs be kept at a reasonable level and factory output maintained more nearly normal. Unfortunately, the necessity for this change in policy will be more readily grasped by the retailer than the consumer. Granting the desirability of a certain amount of changing styles in order to stimulate business, it is unreasonable for a retailer to expect the co-operation of the manufacturer under present circumstances, tolerating the fickle taste of a few consumers whose desire for originality blinds them to the necessity for conservation in this trying period.

Industry Needs Support.

The shoe industry in Canada is still in its infancy. It needs and it deserves the patriotic protection of the Government and the people because it has been operated under conditions which have called for the keenest sort of business intelligence. That it has progressed to its present important position in this country, is due to the optimism of the pioneers who have built plants in some cases in excess of even the normal requirements of the Dominion.

I am sure I speak for the manufacturers and retailers of shoes when I say that we look forward with confidence to the future of our industry even though the war continues for some time to come. We will no doubt be called on to exert greater efforts consistent in their direction with the requirements of the country during a period calling for conservation of money and resources.

Effect of War on Canning Industry in Canada

Owing to Short Packs and an Increasing Demand from the Army, it is no longer a case of finding a Market, but of Getting a Supply for that Market

By R. L. INNES

General Manager, Dominion Canners, Limited

IN the first year of the war, Canadian canners found themselves with warehouses filled from cellar to attic with canned fruits and vegetables, for which apparently there was no outlet. As a matter of fact there seemed to be enough goods unsold of the 1914 pack to satisfy the requirements of the country for fully two years to come. The situation was a most unsatisfactory one, and steps were immediately taken to devise means for disposing of this surplus before the 1915 packing season came round.

Much was expected from war orders. It was hoped that there would be a large demand from the Canadian army both in Canada and overseas, but unfortunately this demand did not materialize to any appreciable extent. The Canadian authorities, unlike the United States' war department, did not place canned goods on the ration list. However, on the chance that the goods might be required in Great Britain, when a shortage of food stuffs was reported, considerable quantities were shipped across the Atlantic.

Had to Charter Ships.

When ocean space became almost unobtainable, our company chartered steamers and finally a sailing vessel, and by this means shipped large consignments of canned goods to Great Britain. These were ultimately disposed of, and this cleared up the situation preparatory to the 1915 packing season.

The output during the past two or three years has been very disappointing, owing to unfavorable weather conditions. For instance, during the 1917 season, canners had to fall back on the American market for fresh fruits and vegetables to a considerable extent because of the scarcity of supplies in Canada, and in many cases it was possible to bring these fruits and vegetables into Canada, pay the duty and secure them at lower prices than the farmers and growers asked for their products in this country. As a result of this shortage, it has latterly become a question rather of getting sufficient materials packed than of finding markets.

No Increase in Number of Plants.

So far as the number of canning plants in Canada is concerned, there has been no increase since the war started, for the reason that, under normal conditions, there is a surplus of canning factories in Canada in any case. That is to say, the capacity of the plants is in excess of the demands for the products, assuming, of course, that the raw materials are available to the capacity of the plants. The number of plants operating in Canada during the 1917 season was fully 25 per cent. in excess of the number operating in 1914, because in that year there was a large overpack.

The labor question in the canning industry has been a troublesome one, and the situation is growing more acute each year. Fortunately the labor required in canning factories is largely female, and in many towns and villages women and girls from the best homes have turned in and helped, having responded to the appeal to their patriotism to produce food both for the soldiers and our allies. We are

confident that if the labor situation becomes acute this year, the women will rise to the occasion, as they have always done in the past.

With regard to transportation, we, of course, have had our troubles, but all things considered, we are pleased to report that we have come through remarkably well. The railway companies have responded readily to our requests for cars, and special attention has been given to the movement of food stuffs.

We have had considerable export business to deal with duirng the past few years, and in addition to the great scarcity of space, ocean freight rates have advanced to more than exorbitant figures. For instance, to-day we are paying on our products $4.00 to $5.00 per hundred lbs. for ocean freight, as against 40c. per hundred lbs. prior to the war, but of course it is the consumer on the other side who has to pay this tremendous rate.

Values have been advanced each year, and at the present time prices were probably never higher. This has been due to many causes, partly to the extraordinary advance in the cost of tinplate. The raw materials required for the canning industry have also been advanced in price very materially. This coming season we are paying almost double what was paid two years ago. The cost of labor has also advanced proportionately.

Regarding the outlook, the situation in Canada is that owing to the short packs of this season and last season, the market will most likely be absolutely bare when the new crop of next season comes in. There is also an increasing demand for the army, both at home and abroad, and the authorities are beginning to recognize that canned vegetables and fruits are an absolute necessity and not a luxury. The United States Government have recognized this fact. Last year they called for 20 per cent. of the canners' output, and this season, with their larger army, it is expected that they will call for at least 40 per cent., so that as regards the immediate future, it is more a question of getting a supply than of finding a market.

The most serious problems confronting the canner are those of labor and raw materials. Owing to the scarcity of labor and high prices, the farmer is reluctant to make contracts. We are also confronted with the fact that we depend almost absolutely on the United States market for our supply of tinplate and, of course without tinplate we could not turn a wheel in our factories.

It is likely that the export demand will continue to grow, and as a result of the large quantity of fruits and vegetables now being consumed in Great Britain and on the continent, these countries, which were at one time very prejudiced against the use of canned foods, now that their tastes have been educated, will no doubt call for a continually growing supply, and therefore, as regards the canning industry (provided the raw materials and labor are procurable), we see no reason why there should not be a very heavy demand during the next few years. In fact, canned vegetables and canned fruits, which were at one time considered merely as a luxury, are now looked upon as a staple article of food, and as being cheaper and more wholesame than many of the fresh vegetables and fruits obtainable in market and other public places. It has also been recognized by the governments that these canned fresh vegetables are absolutely essential to the good health and morale of the armies. This is strongly evidenced by the fact that in all the canteens, both in Great Britain and on the continent, there is a tremendous demand for canned vegetables, canned fruits and other articles which are not obtainable on the regular ration lists of the soldiers.



Canned Goods in the Trenches

Note the familiar-looking box to the right, which carried Canadian pork and beans to the front



Loaded with Canned Goods

This steamer, chartered by Dominion Canners, Limited, carried 66,127 cases across the Atlantic

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JENCKES MACHINE COMPANY EXPANDING.

The Jenckes Machine Company has secured large additional contracts, which will involve the employment of several hundred more men. Additional capital has been brought into the business through those interests which are identified with the Canadian Ingersoll Rand Company, another of Sherbrooke's large industries. At a recent meeting of shareholders of the Jenckes Machine Company some changes were made in the personnel of the board, Mr. George Doubleday, of New York, becoming the new president and Mr. E. W. Gilman general manager.

The Agricultural Implement Industry

As Agriculture is Basis of Country's Prosperity and There Will be Important Developments After the War, Implement Industry Stands to Gain

By H. COCKSHUTT
President, Cockshutt Plow Co., Limited



—*B. & C. Press photo.*
Lt.-Col. H. Cockshutt

THE effect of war-time influences on the agricultural implement industry as a whole has been marked. Both before and after the declaration of war, there was a trade depression. Recovery from this, however, was rapid, and for some time manufacturers in general have been unable to cope with the volume of business offering, owing to the unprecedented shortage of materials and labor. This general shortage affects each line of manufacture; hence production has been much curtailed.

The transportation companies, as one result of the depression, cut down their expenditure on rolling stock and in consequence soon found themselves unable to cope at all adequately with the situation. This occasioned delays in transit both of raw material and of finished products. And during this period the demand for goods from all agricultural sections of the world was growing, making it increasingly difficult to take care of the business offering.

The selling values of implements have not advanced in anything like the proportion of the cost of the raw material consumed in their manufacture. From time to time the selling price has been raised, but up to the present time such values are not in nearly as high a ratio as the increased prices of raw material would warrant.

Little Alteration in Plants.

There has been little or no alteration in the size of the plants of the different agricultural implement works in Canada, so far as I am aware. Production has not been as large as usual, since the export of implements to the war zone, so far at least as the central powers are concerned, has been impossible.

The outlook for trade for the immediate future is exceedingly good, both at home and abroad, but no one can with any degree of certainty anticipate what the result will be after the war. The economic conditions in most countries will need much readjustment, and it will be years before they are in anything like a normal condition. In the meantime, my opinion is that a splendid trade must of necessity come to Canada, where the natural resources, both developed and in process, are so great. I believe the expansion of this country in the next quarter of a century will be progressively steady, which should place us in a splendid position to secure our fair share of the world's business.

Many and varied problems face the implement industry, both now and in the future, at least until such time as some of our own resources are developed, fuel and other raw products being perhaps the most important ones. The former will in the course of time be largely taken care of in our production and supply of hydro power—which, with our great water power facilities, should be adequate to meet the demand of a much greater Canada for many years. The increased demand for metals will be such as to cause development in our iron and steel industries, and my hopes are we will later on be exporters of these commodities instead of importers. As Canada is now getting successfully interested in the shipbuilding industry, we may hope to relieve shortly, to some extent at least, the scarcity of bottoms now prevalent throughout the world, and eventually as a nation control our own mercantile marine.

The financial resources of the country have proved to be in splendid condition, as note our response to the recent Victory Loan, and with our country's position assured, a certain influx of new capital is bound to come to this growing Dominion. It appears to me that prosperity for the agricultural implement industry is sure to continue.

Great Demand Coming.

Summing up in a few words, I might say Canadian development should, after peace is declared, mean the rapid settlement of the land, causing increased demand for agricultural implements, and hence increased prosperity for all engaged in their manufacture. As agriculture is the basis of our country's prosperity and the source of food supply, it stands to reason that its development from a national standpoint is most important. Consequently the increased production necessary to meet the general demand for food supplies comes back to the manufacturer of farm tools who supplies the farmer with the necessary implements which will enable him to concentrate on more intensive farming. By building implements that can be easily operated to cultivate more soil without engaging more farm help, he is doing his share to advance the national interest. Much success has been achieved towards this end.

The implement industry is the foundation stone upon which agricultural success is founded. Good tools for successful farming are necessary, and Canada can well be proud of this branch of the manufacturing industry, which has, and will continue to expand and develop for years to come, provided always that its interests are not affected by unfair or unjust legislation.

The Vehicle Industry

Extract from "Canadian Farm Implements"

During the past four or five years there has been considerable fooling in connection with the vehicle business. Vehicle manufacturers fooled themselves in the idea that buggy sales would never again be a great factor; they drifted into truck and auto body lines, and so on. Dealers fooled themselves that the buggy was a dead game—diverted their attention to handling autos—hard things to sell on a cash basis—and with a high selling cost per car. The man who formerly ordered a carload of buggies very often sold them before the invoices matured; yet the funny thing is that there is actually more profit for the dealer in selling a carload of buggies than in selling a carload of automobiles.

Sweating to sell automobiles, the dealer looked in vain for the profits that he formerly realized on buggy sales.

It is good to see that the buggy is coming back with a rush. The old-time spirit is finding its way back into the horse-drawn vehicle business. The man who formerly purchased a reasonably-priced vehicle in the past found that his outlay ended there; when he purchased an auto last year or two years ago he found that the purchase price was only the first payment on a continuous expense account.

Vehicle manufacturers are beginning to realize that they will have to adopt the aggressive advertising and selling methods which were formerly a feature in the vehicle trade. They realize that they will have to show the dealer that there is more profits in buggies than in autos—but in bringing back the buggy they will be confronted with the supply situation that has affected so vitally the production of farm implements and machinery.

The dealer is well aware of the situation in the steel and iron industry, upon which we have commented in these pages month after month. Contracts are being placed for millions of tons of steel calling for deliveries as far ahead as the end of 1919. Transportation difficulties—a fearful shortage of freight cars—further complicates the situation. The railroads cannot furnish cars, the mills cannot get raw materials nor ship finished product, which is but one side of the steel situation. Yet the vehicle manufacturer must have his malleables and forgings, etc., at whatever price.

In the hardwood market the situation is equally complicated. Each year sees the forest supply lessening in spite of conservation and re-growth. The older timber sections have been exhausted and timbermen are now cutting in more remote limits, perhaps an inferior quality of wood being the result. Hickory and rock elm are being exhausted rapidly, while even our Canadian maple is difficult to secure.

The Supply of Hardwood.

Vehicle hardwoods are in like condition. A considerable supply of small but low-grade hardwood is available, but this is only a fair grade and not up to the former high standard demanded in the carriage wood business. Further the war demand for hardwoods is in almost unlimited quantities.

In many lines substitution may be necessary, and while producers wish to maintain the old standards they will find it very difficult—in cases impossible—to do so. The shortage of skilled labor—and the high cost of labor—further adds to the production cost of the finished goods.

Despite all these difficulties in production, practically every vehicle manufacturing concern reports a big increase in production in 1917 compared with the previous year.

All of these facts go to show the dealer that the buggy is still a real live issue, and that many of the automobile converts—owing to high operating costs—have gone back to the slower but surer means of progress. The horse has "sawed wood" and said nothing, but Government estimates show that he is increasing in both numbers and value.

In the wheel production market the hardwood situation referred to has had an undoubted effect. There is not the least doubt that at the year's end lumber will be selling on a higher basis than now obtains. Even when the war is over there will be an enormous export demand for hardwoods which will affect prices in the future wagon and vehicle trade.

The added cost in vehicle production must, of course, be reflected in the selling price of the job, even as has been the case in the machine and implement business. In wheel manufacture, beyond the mere cost of the materials, rivets and screws have advanced by nearly 200 per cent., and wheel flanges in cases 50 per cent. and over.

In the production of pressed steel bodies the price of the raw steel has, of course, a direct effect. In sheet steel alone an advance of more than 300 per cent. is recorded since 1914. Plain malleables, since the commencement of the war, in the vehicle business, have advanced in cases 100 to 140 per cent., and the advances in malleable have been so far very conservative. Fifth wheels, in the majority of cases, cost from 35 to 40 per cent. more than formerly.

All drop forgings are greatly increased in price owing not only to the higher cost of the raw material but to the fact that cutting dies, high speed steel tools, etc., are away up, with a corresponding effect upon the price of the finished product. No reduction on the price of malleable castings is looked for, although these have by no means hit the levels attained by other steel and iron lines. Coal and coke, essentials in the smelting and forging business, have, like pig iron and other raw materials, aeroplaned upwards.

In all the vehicle accessory business the cost of factory equipment such as tools and machinery has advanced greatly. It is evident that, as in the implement lines, the users will have to pay for all the advances in materials that go to make up a buggy.

Finishings Increase in Price.

The finishing business also shows interesting conditions. Everything used in varnish and paint-making has advanced. In the leather business the price of hides has gone up with a direct effect upon leather cost. Further, the materials used in the production of leather have advanced from twenty-five to several hundred per cent. Tanning materials of all kinds are scarce and high-priced, and as many lines are imported the shipping situation interferes with the supply situation.

The oils used in tanning have advanced, and all other materials entering into the finishing of carriage leathers. Therefore, both in the raw material and in the tanning and finishing of the leather, increased cost is met with. Imitation leather has followed the real article in upward trend. In the vehicle carpet business the high prices of jute yarns and dyestuffs has forced prices skyward.

It is evident that higher costs apply to practically everything connected with the carriage and vehicle business, but should vehicle and accessory manufacturers be satisfied with moderate profits, the legitimate advance in the cost of the finished article should in no way interfere with the sale of vehicles. The present demand indeed indicates that prices have kept well within reasonable limits, and that the dealer can, by applying some of the old-time salesmanship, sell vehicles with profit and satisfaction as of yore.

RUSSIAN ASBESTOS INDUSTRY.

As a producer of the world's supply of asbestos, Russia ranks next to Canada. The total production, however, of the Russian mines, at its highest mark, in 1913, was probably less than one-eighth of the output reached by Canada in that year. As the consumption of asbestos is likely to increase very much after the war, the urgency of development of the asbestos industry is being strongly pressed in conjunction with the general policy of opening up Russia's mineral resources as one of the most necessary steps called for in connection with the economic revival of the country.

The chief centres of the asbestos-mining industry in Russia lie on the eastern slope of the Urals, in the Governments of Perm and Ekaterinburg. The present production comes almost exclusively from that region. Rich deposits have been proved and partially worked in Siberia, in the Governments of Irkutsk and Yenisei, but access to the localities is difficult at present.

Position of the Musical Instrument Industry

Canada Has Always Taken a Pride in the Extent and Quality of Its Musical Instrument Production, and in Spite of Serious Obstacles the Manufacture of These Lines is Still Being Earnestly Prosecuted

By JOHN A. FULLERTON

A CHICAGO journalist seeking information, encouragement and inspiration in this country for his clientele of United States manufacturers, asked, "How many piano factories have closed down as a result of the war?" To the everlasting credit of those engaged in the business of manufacturing and marketing musical instruments in Canada, it was possible to answer him with a capitalized "N O N E."

But while none of the manufacturers have been compelled to cease operations, conditions arising out of the war have taxed their resourcefulness, their enterprise, their capabilities, and their latent Canadian perseverance and determination to an extent that not one of them could possibly realize they were able to exert before being confronted with the reality.

If out of all the numerous and varied effects of the war upon these industries one effect could be singled out as more serious than another, it would be the regrettable interference with the musical education of the country's youth when in the formative period of the rising generation's mind such education is so necessary to individual and national development. Mistaken ideas of thrift in the early stages of the war caused temporary, and unfortunately in many cases permanent cessation of the child's musical education. This in turn affected the sales of instruments of the better class such as have given Canada its place of superiority among the countries manufacturing musical instruments. It has perhaps not occurred to readers of INDUSTRIAL CANADA that Canada's average standard of pianos is considered superior to the average of any other country. But this is by the way. . . Can half a million men be taken out of Canada's civilian ranks without seriously interfering with the routine of the musical instrument business?

Many Crises Have Been Faced.

The music industries have been facing crisis after crisis since August, 1914. The piano manufacturer was confronted by a staggering condition resulting from the business stampede precipitated by the declaration of war. While the manufacturer knew that a prolonged war would intensify the human craving for music he could not know whether he and his business would survive. But he had indomitable faith in Kitchener's Army, in the Navy, in Canada and in himself. His faith has not been misplaced in any point.

The retailers of pianos were more or less stampeded by news of the declaration of war. They were without precedent. They placed very small or no orders for the fall of 1914, or cancelled those already placed. Then began a period of unusual activity in collection departments. In the period of prosperity prior to 1914, credit accounts were opened up more or less freely. As a result of the war many instruments found their way back to the dealers' salesrooms. Customers who had bought on deferred payments preferred to relinquish their claims and urged retailers to repossess in order that they might be relieved of further payments. This was particularly so in the West, and in British Columbia, where considerable of the population melted away, and retail warerooms were crowded with instruments that came back.

When in the course of time the public became accustomed to "being at war" and realized that we must "carry on," there was noticeable some improvement in the demand for musical instruments. But this fact carried little gratification to the manufacturer. He was now confronted with a shortage of labor, greater in some departments than in others, but throwing out the balance of factory organizations, which condition has continued more acute with each succeeding season. Munition plants that had sprung into existence and other industries that began to recover came into competition with the piano manufacturers for labor. The resultant higher wages, and increased overhead cost resulting from reduced outputs wiped out profits. There was a reluctance to advance prices and the manufacturers have continued to absorb an unhealthy proportion of the increased cost in the hope that the necessity would disappear. On the contrary, it has been intensified.

Not Many From This Industry.

The introduction of the Military Service Act finds little eligible material in the factories of the piano and accessory industries. Recruiting had been encouraged by the piano firms to the detriment of their own organizations. Piano-workers are the product of years; they cannot be trained or adapted in a few months. Men have gone who cannot be replaced, and it is only because of men beyond the eligible age, men who have been employed in the industry from boyhood and who are entirely dependent upon this particular industry for their livelihood that the plants could be operated.

The piano manufacturer's market for his supply of materials has become as unstable and uncertain as the supplies of lumber, metal, rubber, leather, ivory. Only through resourcefulness that could not have been suspected five years ago have the plants been able to secure the desired supply of all the necessary materials. It is the business of the piano manufacturer to anticipate his trade a year or more, and not to allow his supplies to get down to hand to mouth basis. With so many and varied lines it has been impossible to anticipate every article. This is a constant worry and even under normal conditions always represented a problem in manufacture. The conditions now are manifestly worse. Prices have doubled and trebled, but the Canadian piano manufacturer has maintained quality. He is studiously jealous for his reputation always having in mind the future.

Conditions in Export Trade.

Canada has never had an extensive export trade in pianos. In fact piano exports have been proportionately almost negligible, though organs from this country have a good reputation in England, South Africa, Australia and New Zealand. Early war conditions intensified a desire to open up foreign markets. Australia, formerly supplied almost entirely by Germany, appeared a likely market. Emissaries from that quarter visited Canada in an endeavor to negotiate trade. Even in England, where the piano manufacturer had made himself entirely dependent upon Germany and France for supplies, a likely market was offered. But by this time costs in Canada and scarcity of men made export trade practically impossible.

The trade has suffered too through the utterances of some

politicians, so-called economists, college professors and journalists, who have in their superior wisdom decided that—for other people at least—pianos and phonographs are war-time luxuries. They have placed piano instruction, and home diversion through music on a level with extravagance in jewelry, confectionery and clothing, motoring and theatre-going. They have not appreciated that music is a human essential, surpassed only by food, raiment and shelter; that there is scarcely an occasion from the cradle to the grave that is complete without music.

These people have not noticed that so astute a personage and a man of such great wisdom and judgment as Britain's Prime Minister, David Lloyd George, is an advocate of music in war time. In a public speech he urged the holding of the Eisteddfod, as the Welsh annual musical festival is known, when it was suggested that this event be discontinued during the war. He said: "Our soldiers sing the songs of Wales in the trenches. . . . . They do not ask us to stop singing."

Music at the Front.

War correspondents are making particular and special reference to the British bands at the front, and in this connection a sketch of Sir Douglas Haig's career in *Current Opinion* contains this observation: "One of his complaints against the War Office in London has reference to its failure to provide music, a neglect now almost a thing of the past. The British military band yet bids fair to rival the German trumpeters, thanks to Haig."

Torquay, an English seaside resort, has an orchestra supported by municipal funds amounting to about $20,000 per year. A proposition to disband this orchestra during the war was voted down by a large majority of the town council.

Ahead of the Canadian manufacturers is the one great vital problem of the after-war effect. In the industry are heavy investments. These the owners are doing their utmost to conserve against the possible competitive ravages of other countries after the war. The subsidized German product made the pre-war entry of Canadian pianos to Australia impossible. The cheap labor of England, the low cost of supplies from the subsidized German factories again made the English market impossible, and the one protection that Canadian manufacturers had against German and English competition was not customs tariff, but a standard of tone, design and workmanship so high that imported instruments could not compete except in special cases, and on the part of the European instrument, apart from one or two possible exceptions, design and tone unacceptable to the Canadian market and a construction unequal to the climate's demands.

Development of Player-Piano.

The player piano, in itself a remarkable achievement of the twentieth century, and upon which money, effort and time has been expended by the manufacturers of Canada with only the hope that the future would retrieve their investments, has suffered a serious setback. Within the past six months a revival of public interest in the player piano is noticeable. This may be attributed to the disappearance from thousands of homes of the only persons capable of giving the household piano music, and again through the craving for home music made more insistent by the mental strain, the silent grief and daily anxiety. To operate the player piano with considerable skill a training of many months and regular daily practice is not necessary as with the piano, and of course, the player mechanism in the piano in no way interferes with the key-board playing. But again the scarcity and high cost of the essentials in player production threaten to eliminate this desirable article from the market.

A branch of the music industries that has apparently prospered as a result of the war is the talking machine business. The comparatively low price at which a machine can be bought; the deferred payment plan that has been introduced in marketing it, the versatility of the instrument have all helped to develop this field to a point that has encouraged at least a dozen firms to enter the market. Piano manufacturers seriously canvassed this field as the possible solution to keeping plants in operation, but again scarcity of men has held them up. Those who have added this department have soon realized it has its own peculiar difficulties of manufacture and of selling and like other fields "distance lends enchantment to the view."

FEDERATED MALAY STATES.

Notification as to the Importation of Motor Cars and Horses.

The *Federated Malay States' Government Gazette* of the 26th October contains copy of Government Notification No. 3223, which amends Government Notification No. 2259, published in the *Gazette* of the 1st August, 1917.

In the latter notification the importation into the Federated Malay States of the following articles was prohibited, viz.:

(1) Motor cars, traction engines, chassis, and parts and accessories of motor cars and traction engines, and
(2) Horses.

It was, however, provided in the Notification that the following were excluded from the operation of the prohibition:

(*a*) Articles the importation of which into the Straits Settlements shall have been permitted;

(*b*) Articles imported under license given by or on behalf of the High Commissioner and in accordance with the provisions of such license;

(*c*) Tyres;

(*d*) Parts and accessories proved to the satisfaction of the Commissioner of Trade and Customs to be intended to be used solely for motor cars and traction engines imported before the 23rd day of May, 1917;

(*e*) Motor cars and traction engines proved to the satisfaction of the Commissioner of Trade and Customs to be constructed and adapted for use, and intended to be used solely, as motor omnibuses or motor ambulances, or in connection with the conveyance of goods or burden in the course of trade or agriculture, or as road rollers, road sprinklers, or fire engines or otherwise for the purpose of a Government Department or a Sanitary Board;

(*f*) Chassis, component parts and accessories so proved to be intended to be used solely for any such motor cars or traction engines as are referred to in paragraph (*e*).

The present notification prohibits the importation of the above-mentioned articles and animals, subject to the exclusions specified above, except under and in accordance with the provisions of a license given by the High Commissioner, notwithstanding that the importation of such articles and animals into the Straits Settlements has been permitted.

Board of Trade Journal,
London, December 20th, 1917.

The first concrete ship has made a round trip and sailed into its home port, after a successful voyage. It is a Norwegian vessel, called the Nansenfjord, and has just returned from the British Isles, after having steamed two thousand miles. The ship was built several months ago, and is made of structural steel and concrete. It is said to have answered every test satisfactorily, unaffected by the vibration of the engines and withstanding the jamming which a ship frequently receives when it is docked. Also it shows no ill-effects caused by contraction and expansion. The vessel is of the single-screw type, driven by a heavy oil engine, and has a displacement of about five hundred tons.

French Preparation for Trade After the War

Since the Outbreak of the War the Importance of Encouraging French Export Trade, Particularly After the Termination of the Conflict, Has Led to the Establishment of Several New Organizations

By C. W. A. VEDITZ

U. S. Commercial Attache at Paris, France

SINCE the outbreak of the war numerous French writers upon commerce and industry have discussed in detail the economic consequences of the war and the problems of reorganization that will need to be solved after the termination of hostilities. Nearly all of them have insisted upon the importance of developing France's export trade, and their suggestions in this connection have been both critical and constructive. That is to say, they have pointed out those features of the present situation that must be remedied and have also proposed a series of new measures and organizations that are now totally lacking.

Naturally enough, the French foreign service has been subjected to a critical examination with regard to its efficiency as an agency for the promotion of export trade; and an impression has prevailed that it is susceptible of improvement in that respect.

Chief Agency for Promotion.

The chief Government agency for the promotion of French export trade is the Office National du Commerce Extérieur, entrusted by the law of March 4, 1898, with the task of furnishing French merchants and manufacturers with such commercial information as is likely to contribute to the development of French foreign trade and the expansion of French markets in foreign countries and in the French colonies and protectorates. The Office National has the aid in this task of three groups of agencies—the diplomatic and consular services, the French chambers of commerce, and the Foreign Trade Counsellors. The Office maintains a collection of foreign trade catalogues, which it analyzes and brings to the attention of interested French firms. It puts the benefit of its investigations at the disposal of French merchants and manufacturers. Unlike the United States Bureau of Foreign and Domestic Commerce, which is the corresponding American institution, it furnishes confidential information concerning the standing and financial resources of particular foreign firms. The Office receives daily inquiries from foreign agents and importers, who are put in touch with French firms that have indicated an interest in foreign markets, and it keeps a classified list of French exporters. The Office also undertakes to bring together groups of French exporters who would be unable individually to maintain an export organization. Whenever the Office has cognizance of foreign trade opportunities, particularly of important orders to be placed competitively by public or private corporations, such opportunities are brought to the attention of interested French chambers of commerce, trade associations, or even individual firms whose names are registered with the Office.

The Four Departments and Their Functions.

The work of the Office is carried on by four departments. The first has to do with publications and information concerning the commercial standing and reputation of foreign houses. The publications of the Office are the following:

The *Moniteur Officiel du Commerce* is normally issued every Monday. Its publication ceased at the outbreak of the war but will shortly be resumed. The *Moniteur* reports changes in foreign tariff laws, in French commercial legislation, and in the commercial laws of foreign countries. This publication has the exclusive right to the reports of French consuls and diplomats on commercial subjects. In brief, the *Moniteur* is the commercial-information periodical of the French Government, resembling in general the daily *Commerce Reports* of the American Government. It contains the trade opportunities brought to its notice that are likely to interest French exporters and manufacturers.

The Office ordinarily issues weekly a *Feuille d'Information*, or Bulletin of Information. This publication also was stopped at the outbreak of the war but will soon be taken up again. It contains more important news items and reports issued in the *Moniteur Officiel*. This bulletin is regarded as an efficient agency of trade propaganda; it has a large circulation in France and is posted publicly in railway stations, city halls, schools of commerce, and other places where it is likely to attract public attention. Its aim is to furnish general trade information and to stimulate an interest in export trade even among those manufacturers and tradesmen who have previously shown no disposition to seek business in foreign markets.

The third class of publications of the Office National consists of the so-called *Dossiers Commerciaux*, or commercial documents, each relating to a particular commodity or group of commodities, or to the export market offered by a particular country or district. These documents often contain confidential information not intended for general circulation. They furnish detailed and specialized information along some specific line, likely to interest only those French dealers or manufacturers engaged in that line. They are furnished only to *bona fide* French firms located either in France or in its colonies.

Results of Special Investigations.

Finally, the Office publishes, in the form of monographs, the results of special investigations into the market for particular products singled out for such surveys. There have already been published such special monographs relating to wines, cutlery, porcelain, glassware, canned-food products, and the collection of credit claims abroad. The most recent of these Notes Commerciales concern the different sections of Morocco, investigated from the standpoint of exports and imports and with regard to agriculture and colonization.

The Official National furnishes, free of charge, information concerning the standing and commercial rating of foreign firms and has in its files a large collection of catalogued cards enabling it in many instances to furnish such data without delay. It also furnishes the names of lawyers prepared to take charge of claims for he collection of unpaid bills abroad.

Another department of the Office is concerned with the dispensation of general commercial information, the transmission of samples, and the furnishing of technical data. It undertakes to provide exporters of a given product with data concerning the principal nations exporting that product and with details concerning the requirements of particular markets. It furnishes lists of foreign dealers and importers

and undertakes, on behalf of French inquirers, to purchase, on their account, samples, catalogues, etc.

A third department of the Office specializes in matters of customs tariffs and trade statistics. It undertakes to furnish information with regard to import and export duties, commercial and navigation treaties and regulations, importation in bond, certificates of origin, trade-marks and patents, etc. It also seeks to keep fully informed concerning statistics of production, consumption, imports, and exports.

A fourth division of the Office National is concerned with transportation matters. It keeps track of transportation charges, both by water and by rail, of ocean freight and insurance rates, of postal charges and regulations, of telegraphic rates and regulations, of port charges and navigation taxes.

Association Nationale d'Expansion Economique.

Since the outbreak of the war, the importance of encouraging French export trade, particularly after the termination of the conflict, has seemed to warrant the establishment of several new organizations and agencies, and special attention has been given to the efficiency of German methods of trade expansion (as set forth, for example, by Henri Hauser in his book, Les Méthodes Allemandes d'Expansion Commerciale). Several new groups have been founded to aid and encourage the exportation of French products. The first and one of the most important of these is the Association Nationale d'Expansion Economique, formed under the leadership of the Paris Chamber of Commerce, which is a semi-official organization having close relations with the French Government and especially with the Ministry of Commerce. The purpose of this organization is to prepare for competition after the war, for the new economic and commercial dispensation that will inevitably follow the cessation of hostilities. The association is divided into several committees entrusted with the study of particular branches of the export trade. It comprises the most important, if not all, of the chambers of commerce throughout France and of the various manufacturers' and merchants' associations in the Republic.

This association held an important commercial congress last March, which was presided over by the Minister of Commerce and which discussed some of the more important problems that will confront the nation in connection with the resumption of normal economic life at the end of the war. The most important single accomplishment of the association thus far is the preparation and publication of a rather complete survey of the industry, commerce, and agriculture of France, with particular reference to the problems and conditions that will arise after peace is restored. The reports in which the results of this survey are given number 70, and their subjects are as follows: General report; the woolen industry; the felt industry; silk and silk goods; ribbons and silk and textiles partly of silk; trimmings and braid; ready-made clothing; the cotton industry; flax and hemp goods; laces and embroideries; jute; hosiery and knit goods; dressmaking; women's wear ("la mode"); furs, lingeries, perfumery, etc.; leather, hides, and shoes; chemical fertilizers and other chemical products used in agriculture; dyestuffs; the products of large-scale chemical industry; coal; the extractive industries; the metallurgical industries; mechanical construction; electrical materials and construction; hardware; watches and clocks; optical glass; the photographic and cinematographic industries; jewelry; toys; ceramics and glassware; chirurgical and sanitary articles; paper; book publishing; resin and resinous products; trade in wood and lumber; food products; fishing; the merchant marine; mineral-water and health resorts; the hotel industry and tourist business; banking and credit; insurance; colonial administration; the cereal crops; the cattle industry; the meat industry; cattle raising in the colonies; dairy products; the exportation of wines; the exportation of liqueurs; forestry after the war; fruit and truck farming; horticulture; industrial plants (beet sugar, hemp, hops, etc.); the trade in seed; agricultural resources of colonial France; agricultural machinery and equipment; agricultural labor; the exportation of farm products (on which subject there are nine reports, covering the principal export markets for French agricultural products).

The Association Nationale maintains a bureau of commercial information prepared to advise French exporters concerning customs duties, import and export regulations, black lists and the blockade, transportation rates and regulations, the exchange situation, taxes, anti-fraud legislation, colonial conditions, and trade opportunities. It also maintains a department for commercial translation work and issues a bulletin designed to keep its members informed promptly of changes in commercial laws, tariff rates, etc. The association will publish annually an Index of French Producers in the French, English, and Spanish languages, to be circulated widely among foreign jobbers, purchasers, and importers. It has already begun the publication of a monthly review, called *L'Expansion Economique*, containing a section of industrial and commercial notes, a section of agricultural notes, articles on current economic topics, and a summary of industrial and commercial news relating to France and the principal commercial nations of the world.

Other New Organizations to Promote and Protect French Trade.

Of somewhat more recent formation than the Association Nationale is the Union Nationale pour l'Exportation des Produits Français et pour l'Importation des Matières Premières, founded by M. Raoul Peret, former minister of commerce. This organization seeks above all to encourage the grouping of French manufacturers and dealers in order that by this means smaller producers who are unable independently to maintain an export organization may be able to enter the export trade. It is believed that by forming such co-operative groups of comparatively small concerns it will be possible to deal advantageously with steamship and railroad companies and to obtain the special benefits now confined to the larger establishments that have created and maintained their own export organizations. It is the ambition of this association to foster the creation of such groups and to create transportation companies under its own control.

Quite different are the aims of the Union Intersyndicale des Marques (a union of manufacturers' associations for the protection of trade-marks), founded by a well-known electrical engineer, M. Raynald Legouez. The main purpose of this organization is to protect French manufacturers against imitation and misrepresentation. It is held that the Germans have been in the habit of selling their own goods as of French manufacture, not only in neutral markets but even in France; also that products nearly finished in Germany have in the past been shipped to France and finished there in order that they might be sold as French goods. The Union Intersyndicale is therefore carrying on an active campaign to persuade French manufacturers to place upon the market only goods that bear the distinctive label of the union—with the letters U. N. I. S.—as a guaranty of French origin. The union hopes to include all important groups of French manufacturers and thus to prevent the sale of goods that are not marked with the label of the union.

Movement for Establishment of Annual Fairs.

In addition to organizations of the kind described, attention should be called to the movement in France in favor of annual fairs or markets comparable to the famous German

fairs at Leipzig. The first experiment in this direction was made by Senator Herriot, the Mayor of Lyons, in March, 1916, when Lyons held its first sample fair (Foire d'Echantillons) and 1,342 exhibitors took part. The second Lyons fair, held in March and April, 1917, was attended by 2,593 exhibitors, 424 of them being from foreign countries, with 25 representing American firms. It is reported that during the fair the exhibiting firms obtained orders amounting to about 200,000,000 francs.

In September, 1916, Bordeaux had a fair, but this was considered as devoted especially to the products of French colonies and to wines and foodstuffs, for which Bordeaux has always been a centre of great importance. The second Bordeaux fair, held in September, 1917, repeated the success of the first.

In May, 1917, Paris inaugurated a fair, in which special attention was given to the so-called "articles de Paris" and "articles de luxe" that play so important a part in the industrial and commercial life of the French capital. Other cities have indicated a disposition to undertake similar projects; it is stated, for example, that Marseilles contemplates having its annual fair. There is, of course, some danger here that the rivalry of French cities may militate against the establishment of a fair that will be truly national or international, and it now appears likely that the fairs of Paris and Bordeaux will specialize in certain groups of commodities, in the production or handling of which these cities play a leading part, whereas the Lyons fair will be of a more general character and thus become a real rival of the one at Leipzig.

New Commercial Publications.

In addition to the new organizations to which reference has been made, and to the newly established French fairs, the awakening interest in French export trade is manifested by the publication of a large number of new reviews, newspapers, and other periodicals devoted to commercial subjects and especially to the expansion of French foreign trade. Easily the foremost of these is the *Exportateur Français*, published weekly under the editorship of Maurice Ajam, Deputy and former Under Secretary of State. Mention should also be made of *Le Soir*, a daily commercial newspaper; *La Victoire, Economique*, a weekly newspaper; *Le Moniteur du Commerce*, published weekly; *L'Initiative Commerciale*, a monthly review; *Commerce et Industrie*, a monthly; and *Mercure*, the organ of the French Federation of International Commerce. All these publications give special attention to French export trade.

COAL PRODUCTION.

1917 Production in the United States Showed Increase of 8.3 Per Cent. Over 1916.

According to the weekly report of the Geological Survey, a preliminary estimate places the estimated production of bituminous coal at 42,050,000 tons, the lowest recorded for months since April, 1917. On this basis the entire 1917 production should be approximately 544,142,000 tons, representing an increase over 1916 of 8.3 per cent. Anthracite shipments were reported as 29,228 cars. Reports from almost every district indicate some improvement over the extraordinary depression of the week of December 15. For the country as a whole, losses during the week ended December 22 due to all causes amounted to 31.9 per cent. of the full-time capacity. Improvement was reported in car supply, losses due to that factor declining from 30.8 to 24.8 per cent. Losses attributed to labor shortage and to mine disability returned to normal.—*Railway Age Gazette.*

Charities and Advertising

The Toronto Branch Forms Bureau of Advice and Information of Charities and Advertising Schemes for Benefit of Members

By H. MacDONALD

Acting Secretary, Toronto Branch Canadian Manufacturers Associa ion

The Toronto Branch Executive has prepared an instructive report dealing with careless liberality in the matter of alleged philanthropies, war charities, and "fake" advertising, and has formed a new department for the future protection of the manufacturers against fraudulent devices. It is believed that many thousands of dollars are annually obtained from our business men for unworthy charities and useless advertising, as the result of almost daily calls, until it has reached a point where some drastic measure must be adopted.

Toronto seems to be the goal of every rascal in the country who can bring himself to the mean occupation of robbing the generous in the name of heroes; to get money on the representation that it is to be spent for a soldier or sailor or the dependent kinsfolk of the man in uniform. Our openheartedness has been the making of regiments of knaves. No world war was needed to disclose it to those who trade on unquestionable faith and humane impulse. The city's inhabitants as individuals and the civic corporation itself have anon "fallen" for charities that never helped a needy man. A well-printed letterhead, unauthorized use of familiar names, and a little enterprise in the less dangerous ways of thieving have been all that was required.

The societies that attempt to direct charitable disbursements into proper channels have long fought to reform the giver who asks no questions. The newspapers have urged their readers to enquire before they handed over their cash. But the impulse to help is so strong that their agencies have been able to accomplish little of reform in a habit that springs from the most admirable of qualities and is perverted to the worst of purposes.

The war, the magnitude of the demands made on all, rich and poor, conspicuous and obscure, the psychological effect resulting from unprecedented spending and giving, the ingrained, ineradicable disposition to help; a thousand factors besides carelessness about money and lack of time to investigate, work together to smooth the path of the unprincipled.

"Fake" advertising devices are amongst the chronic nuisances of modern business. Every business man encounters them in some form or another and at varying intervals. Sometimes it is a call from the glib-tongued stranger who tells him that he, the speaker, has one of the best propositions in the advertising line that has ever been before the public; or circular letters are received from an organization with a high-sounding name he never knew before.

Hence the Toronto Branch has inaugurated a Bureau of Advice and Information, to which it requests the manufacturers to report all such schemes, before subscribing to them, to be thoroughly investigated and, if necessary, exposed.

The Canadian Manufacturers Association through its chain of branches and wide membership has exceptional facilities for undertaking this class of work. The success of the new department will be commensurate with the extent to which its services are requisitioned. In the aggregate it may save the manufacturers thousands of dollars. While we must preserve the excellent characteristics on which the contemptible frauds fatten, it will be the aim of the Bureau of Advice and Information to find a way to suppress those who abuse them.

Conditions in the Canadian Mining Industry

The Mining Industry Bears a Very Important Relation to the Manufacturing Industry and Manufacturers and Miners Have Many Problems in Common Which They Would Do Well to Consider Together

By REGINALD E. HORE

ARE you interested in Canadian mines? If you are a Canadian manufacturer you cannot say no. You may not have invested any money in the development of minerals and may therefore consider mining of no interest to you; but whether you are sharing in the development or not, your business is to a considerable extent dependent upon the successful operation of mines. You cannot in times of peace afford to ignore the necessity of development of our mineral wealth. Now that we are at war it is doubly important that the basic industries, of which mining is second only to agriculture, should interest you.

Mine products are essential at all times, and during the war there has been an increasing recognition of the fact that mine products are of first importance as the basis of all munitions manufacturing. Can you think of any articles more necessary than coal, iron and steel? And yet we were criticized two years ago for calling attention to the folly of recruiting so many miners. Manufacturers using coal and other mine products cannot afford to ignore the importance of providing for the production of the basic materials. It is in the national interest that the supply of such materials should not be interfered with.

Manufacturers should also take an interest in mining on account of the markets which the mining districts afford them. Do you know that it costs $7,000,000 annually to run the silver mines at Cobalt, and that most of that money finds its way eventually to such centres as Toronto, Hamilton and Montreal? What does this inflow of money mean to you as a manufacturer? You must realize that many millions are spent annually to run the mines and smelters in various parts of the country and that some of this money goes to manufacturers in other countries because Canadians are not making the necessary supplies. You have heard much of after-the-war markets and of the possibilities of building up an export trade. Have you considered whether there is an opening in the mining districts for goods that you are making or could make?



The Modern Miner at Work

The manufacturer and the miner have many problems in common, which they would do well to consider together. I cannot in this short article do more than indicate some of these.

A problem of the first importance is that of power. You know we are short of power; but have you considered all the reasons for this? Could we not obtain more coal and electric power if all those interested got together? The shortage is now unfortunately upon us. What are we doing to overcome it?

Why are we short of coal in the east? It is not simply because the manufacture of munitions increases consumption. It is because our Nova Scotia coal mines cannot be worked to capacity. The need for coal was early recognized by the coal mining companies;

but the efforts of the operators to convince the Government of this were fruitless. If the Canadian public had from the beginning of the war recognized the importance of protecting the supply of this basic material our great mines in Nova Scotia could have supplied St. Lawrence ports with much larger quantities of coal. Men were taken from the mines, and coal-carrying ships were diverted to other and less important business. The men made excellent soldiers and the ships did useful work; but the supply of one of the most important articles for the successful prosecution of the war was seriously interfered with. The output decreased in 1917 and the prospects are that it will be impossible to avoid a further decrease in 1918.

In Central Canada also we are short of power. Here we are entirely dependent on the United States for coal, but we have excellent water powers. Is it not up to the manufacturer to make a great effort to educate the public to the necessity of more fully utilizing our water powers? In the mining districts the high cost of coal long since resulted in an extensive use of water power; but further development by private enterprise in Ontario is scarcely likely under the conditions that exist, and serious delay in the production of metals essential for war purposes has been occasioned during the past year. In Southern Ontario the public-owned enterprise has been carried on with great success; but the supply of power is adequate for metallurgical purposes as well as for transportation and manufacturing. The situation in Ontario could be greatly improved by utilization of the great Niagara water power. Metallurgical development in Southern Ontario is hampered by inadequate development at Niagara Falls. Why should we continue to be satisfied to rave about the beauty of the falls when stern necessity dictates that we should use the power which is so fortunately available close to our great industrial centres and in a part of Canada that is without coal? The mining and metallurgical companies operating in Ontario want to be independent of outside sources of coal and would gladly develop coal deposits in Ontario if there were any. We have a possible source of heat and power in our peat bogs; but believe the solution of the problem in Ontario to be the utilization of Niagara power.



Prospectors Encamped on a Northern Ontario Canoe Route

In the West, as in the East, we have plenty of coal. One of the problems of Alberta coal producers is to get Canadians to use Canadian coal instead of importing from the United States. Nearly 3,000,000 tons of American coal was imported during 1917 into parts of Western Canada, which could and should be supplied by the coal mines of Alberta.

Production in 1917.

During 1917 there was, in spite of the difficult operating conditions, great activity in Canadian mining districts. Shortage of labor and high cost of machinery and supplies of all kinds, has been offset by a great demand and good prices for mine products. When the final figures are available it will be shown that the value of Canada's mine products made new records in most cases, while in some there has been an increase in quantity also. The total production cannot yet be given in detail. The value of the output for the year was $200,000,000, a considerable increase over any previous year.

Iron and Steel.

The great demand for iron and steel has resulted in large increase in production at Canadian plants; but the production of iron ore continues to be only a small fraction of the amount used in Canadian furnaces. Now that the manufacturers are brought face to face with a shortage of supplies and we seem likely to suffer further embarrassment by embargoes on ore, iron and steel from the United States, it is perhaps well to bear in mind that more satisfactory conditions would obtain if more encouragement were given to those who attempt to produce in Canada the minerals that are used in the iron and steel industry. Fortunately the demand for iron and steel has been ably met by the companies operating in Canada; but it can hardly be said that we have yet risen to the occasion as we should.

While we have not in Central Canada any iron deposits comparable with those of the Lake Superior States, we have some small deposits which have not been utilized to the best advantage. We have also supplies of other minerals of importance in the iron and steel industry which are not being properly utilized. Take the case of molybdenite, a mineral in great demand because of the use of molybdenum in the making of molybdenum steel for guns and other war purposes. One might expect that we would encourage the development of our molybdenite deposits. But what has been done? The British Government has placed a maximum price on molybdenite and the Canadian Government has placed an embargo on export. The result is that only a few deposits are being worked, and other good prospects lie idle. The price fixed is high compared with pre-war prices; but only one-half of that which obtains in the United States. Natural development is being interfered with at a time when molybdenite is much needed. Fortunately the Union Government has been made to see the folly of such a policy and it is expected that the embargo will soon be lifted.

Copper and Nickel.

Copper and nickel have continued in great demand. The price of nickel has been advanced slightly. The price of copper has been fixed at a figure which is generally considered



A Lead Refinery at Trail, B. C.

fair. The mining of these two metals, so essential for munitions, has been carried on energetically. The refining of nickel in Canada in large quantities has not yet started; but the big plant of the International Nickel Co., at Port Colborne, is nearing completion, and will be in operation early in 1918. The smelting and refining works of the British America Nickel Co. at Sudbury, will be in operation in 1919.

The copper-nickel mining industry of Ontario is of great importance to Canadian manufacturers, for the operation of the mines, smelting works and refineries necessitates the expenditure of many millions each year for supplies and labor.

Lead and Zinc.

Lead and zinc production has been large during the year and a considerable quantity of refined zinc has been shipped from the new plant at Trail, B.C. Owing to over-production in the United States the price of lead has fallen greatly, and in British Columbia there has lately been a set-back owing to difficulty in selling the metal.

Gold and Silver.

In a period of high prices, gold mining naturally suffers; but even under these circumstances we are able to record great development in this industry. Profits have fallen and payments of dividends have been suspended; but at the mines, results have been obtained that assure a wonderful future.

Silver mining companies have at last received what is considered a fair price for silver, and the shortage of the supply indicates that good prices will obtain for some time. This adds materially to the profits and will greatly lengthen the life of the silver mines at Cobalt. The successful introduction of the flotation process, a method of separating and concentrating minerals by agitating them in water containing a small quantity of oil, has also done much for the silver-mining companies, by providing an excellent method of recovering silver from low grade ore and old tailings.

The Need of a Minister of Mines.

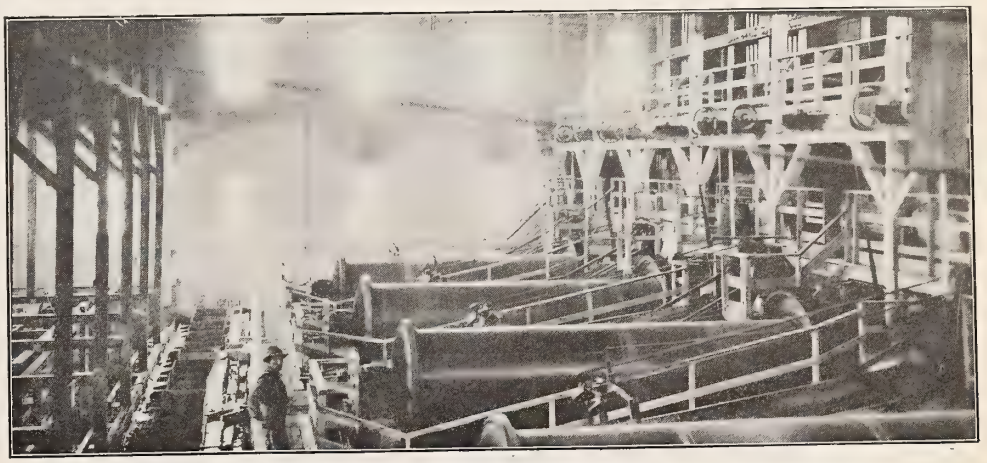
One of the serious difficulties encountered by producers of minerals in Canada should be mentioned here. We have a very good technical Mines Department at Ottawa and in the chief mineral-producing provinces, and we have in the Canadian Mining Institute an organization which can well present to the Government the needs of the industry; but there is no real Minister of Mines. Canada's great mining industry has no competent representative in the Cabinet, and in matters affecting the mineral industry recent legislation has been of a retrograde character.

The portfolio of Minister of Mines in the Canadian Cabinet has been for several years held by men who are not in touch with the needs of the industry. It has been customary to designate the holder of one of the important portfolios, such as Secretary of State, also Minister of Mines. In the past ten years eight politicians have been called Minister of Mines. None of these gentlemen did more than was expected of them, and that was not very much.

Mining men are endeavoring to have the Union Government appoint a real Minister of Mines. If you as a manufacturer see the necessity of handling our basic industries in an intelligent manner, you may be interested in knowing that it is common talk among mining men throughout North America, that not only are the so-called Ministers of Mines in Canada incompetent, but that the portfolio changes hands so often that the holders avoid absorbing any knowledge of the industry which they might obtain in spite of their lack of interest in it.

We have now as Minister of Mines a gentleman who is also Secretary of State and who must necessarily devote most of his attention to the latter portfolio. He is a man whom we expect to do the best he can in the time at his disposal; but our experience of the past decade leads us to hope for little until the Government realizes the impossibility of such a man giving the service which is necessary if our mineral resources are to be handled intelligently. We need a real Minister of Mines. We have had too many so-called ones.

The recent fire at the Polson Iron Works plant, Toronto, destroyed the pattern storage warehouse, the carpenter shop, the pattern shop and the mill, as well as a couple of other storage buildings. The greatest damage, however, was to the steel hull of a 3,500-ton standardized freighter. This vessel was being built for a Norwegian firm and was one of 18 of this type to be constructed by the Polson Iron Works. It was almost completed, but the fire warped the hull so badly that it will be necessary to replace fifty plates. This will cause a delay of about four weeks.



Tube Mills and Stamps in the Mill of a Canadian Gold Mine

Ventilation as a Factor in Factory Production

The System of Heating Best Adapted for the Shop is Frequently an Important Question, and in the Following Article Various Systems Are Described

(Reprinted from the "Michigan Manufacturer")

SINCE science has become the co-word of management much time and thought is being given to the "man element" of production. Never before has the sociological aspect of man development attained so high a point on the curve of importance as now prevails. Ventilation is one of the momentous considerations in connection with man output.

The system of heating best adapted for the shop is frequently an important question. There are all kinds of methods —some good, many poor, and a large number positively bad. It is not my intention to analyze the merits and demerits of the various systems, but to point out the advantages obtainable with a good system of heating, and to explain how it should be laid out, installed and operated to secure the best results.

A good heating system is quite as essential to the success of any manufacturing plant as good materials, good tools and good light. Employees cannot work at their highest efficiency when uncomfortable; neither will high-grade mechanics stay in a shop which is poorly equipped when there are other shops having modern conveniences for their comfort. First-class work can only be turned out by first-class mechanics. If they cannot be obtained, the natural result is disorganization, a poor grade of mechanics and inferior output. Even if experienced mechanics can be retained, they cannot put forth their best efforts, either in thought, carefulness or speed, if the atmosphere is impure or the temperature uncomfortably warm or cold.

Influence on Output.

There are instances arising every day which prove conclusively that the heating plant has a positive and direct influence on the quality and quantity of the output. It does not require exceptional abilities for observation or analysis to discover this. Which plant is it that grows the faster—one with poor and antiquated equipment, or one which has everything up-to-date? Which one of the two would make the better impression upon you? Did you ever find salamanders or stoves in a pushing, growing, up-to-date plant?

Did you ever associate the shop conditions as you found them with the business done and the progress made? While the entire success of the plant cannot be attributed to the sanitary conveniences and the comforts afforded the men, yet it is a safe conclusion that the same management given a shop devoid of these things could not make the progress attained with them.

Those who recognize the advantages of a good heating plant frequently do not realize the necessity for designing it when the plans of the building are being made. The result is, that instead of arranging other things of much less importance to accommodate the heating plan, the latter has to be contorted, cut down, or squeezed into whatever space is available after everything else is taken care of. This makes the plant either expensive to install or to operate, and often it is so contorted or dwarfed in one way or another as to fail to give the satisfactory results naturally expected.

When it comes to laying out a heating plant, the character of the building and the purpose for which it is built must be carefully studied.

What answers for one type of building is totally unsuited to another of a different type. Again, what serves very nicely in a building of a certain type, in which a particular class of work is done, proves anything but satisfactory in a building of the same type, in which a different kind of work is done.

This can be made clear by comparing a machine shop with a paper mill. They are similar in size, shape and exposure. In the machine shop, no steam or moisture is emitted to condense on the walls and roof; hence many of them are heated in a fairly satisfactory manner by direct radiation, consisting usually of steam coils, strung around the outside walls. Such a system would never do in a paper mill, where every day several tons of water are thrown off into the atmosphere in the form of steam from the drying cylinders over which the paper passes. This steam must be taken up by a copious circulation of warm, dry air, or it will drip from the roof and run down the walls.

Again, in a shoe factory, shirt, glove, cap or other manufacturing plant where hundreds of employees are assembled in one room, the air very soon becomes unfit to breathe; it produces a dull, languid feeling, which saps all the vitality and ambition of the employees, makes them inert, forgetful, careless, subject to severe colds and other disabilities, all tending to make them irregular in their attendance to their duties. To overcome this, the building must be well ventilated, and the ventilation of a building in the winter time must be considered in connection with the heating system.

Foundries are much like the paper mills just cited, as the steam arising from the moulds when pouring off, as well as the smoke and noxious gases should be removed. Roof ventilators, monitor lights or ventilating sashes are very poor makeshifts indeed. Perhaps they will let some of the smoke escape and with it some of the gases and most of the heat; but most of the gases, being heavier than the air, lie in the lower strata near the floor and are not affected by the roof vents. Further, instead of removing the steam, they only accelerate the annoyance from it, as the warm air which escapes through the roof must be supplanted by outside air, and this, not being properly heated, chills the air within the building, thus reducing its capacity to carry moisture, thereby causing greater precipitation than there would be were no attempt made to ventilate the building.

Enormous Surface Exposure.

Then again, apart from the use to which the building is put, consideration must be given to its character.

The tendency nowadays is to put up lofty buildings. Such structures have steel frames, walls made almost entirely of glass. with only narrow pilasters between, and shallow panels of brick or concrete above and below the openings. The exposures are relatively enormous requiring large amounts of heating surface, yet the space available for steam coils are limited to such an extent that they are often insufficient for the heating surface required.

Furthermore, when the space is sufficient, the banking of such great heating surfaces into a small space, makes it uncomfortable for the employees who have to work near them.

It is these and many other features that have made the blower system popular, as it has proven efficacious in almost

every building of whatever character, when it has not been misapplied. Many of the designers of such heating plants seem to have a penchant for trying to make this system do all sorts of unusual and almost impossible "stunts." The system is so flexible and so positive in its action that many persons seem to think it capable of defying Nature's laws. But occasionally Nature asserts her rights in a most emphatic manner, with the result that a plant fails to do what was expected of it. This, however, is no fault of the system, but rather of the man who designed the plant.

The prevailing practice in industrial plants is to make the ducts of galvanized sheet iron, for all types of buildings, except where it is necessary to place them underground, in which case they are built of brick, vitrified tile or reinforced concrete.

It is always advisable to run the ducts inside the building because of the heat wasted if they are run outside, be they above or below the ground. It is, furthermore, advisable to make the ducts of galvanized iron and suspend them in the open air overhead, if possible, as the loss of heat from underground ducts is enormous.

The average modern shop has a trussed roof, the bottom chords of which are often 30 to 50 feet above the floor. The ducts have to rest on these trusses and it is impossible to drive air from them down to the floor in a way that will produce satisfactory results. This method has been tried often enough, but there still remain others who must be convinced of its impracticability by trying it themselves. The only way to obtain an even distribution of heat, is to discharge heated air at such points as it is most needed and where the effect will be most appreciated.

To distribute the heat evenly necessitates running the ducts to all cold spots; it is needed the most in the lower strata near the floor, not up among the roof trusses; the greatest benefit is derived from the system by discharging the warm air close to the floor, keeping the lower strata in circulation and thereby warming it by mixing with it the warm air discharged from the ducts.

Air Should Discharge Directly.

The best way to bring this about is to extend the branch ducts from the main trunk line over the walls or to posts not more than twenty feet away from the outside walls, then down towards the floor, ending four or five feet from the floor. The air should discharge directly toward the floor or at only a slight angle from perpendicular. This method will be found most effective in machine shops, foundries and other lofty structures.

In paper mills, rubber works, dye houses and other plants for which the building is of the same type as those just noted, it is necessary to blow some hot air out towards the roof as well as down towards the floor, in order to take care of the condensation which would otherwise collect on the under side of the roof. Even then, in very cold climates, it is sometimes necessary to put in a false ceiling to overcome this annoyance, unless hoods are provided to remove the vapor immediately, and particularly if the roof is built of a material which is a good conductor of heat.

For buildings which are several stories in height, each storey being from ten to sixteen feet high, the treatment should be different. With them it is possible, and sometimes advisable, to introduce the air near the ceiling, blowing downward at an angle of 30 to 45 degrees from horizontal.

Frequently buildings of this character are quite effectively heated from one or two galvanized iron stand pipes run up through the middle of the building with outlets into each storey. This method is practical in buildings not over sixty feet wide; if the building is not over 100 feet long, one riser will be sufficient.

For cotton, woollen, silk and other textile mills, it has become almost the universal practice to build vertical warm air flues on the outside face of the pilasters, on both sides of the building. These flues usually have a two-inch air space built into the brick wall to insulate them. The air is admitted to each storey about eight feet above the floor. Deflecting "Mill Dampers" regulate the volume of air discharge through each opening. The various flues can be supplied at their base from a main built either of masonry or galvanized iron.

Velocity of Air Current.

For manufacturing plants it is customary to make the trunk line ducts of such an area as will convey the required volume of air at a velocity varying from 1,500 to 2,400 feet per minute. In high buildings used for heavy and coarse work, where most of the employees stand or move about considerably, the velocity can be much higher than in shops divided into several storeys, or those in which the work is more or less sedentary, like the manufacture of shirts, gloves, etc., where the employees sit all day, simply feeding the material into machines.

Air currents or drafts are of no material moment in the former shops, while in the latter they will produce great discomfort. Therefore, the latter class should have the main ducts of sufficient area to keep the velocity down to 1,200 to 1,500 feet per minute and the branches should be proportioned to a velocity of 600 to 900 feet.

Another advantage the blower system possesses, infrequently brought to notice, is the cooling and comfortable effect it has in oppressibly warm weather in the summer time. Simply running the fan will, of itself, greatly relieve the oppressiveness, and when cold water is circulated through the coils the difference is very noticeable.

There is often a wide variation of opinion as to the best temperature to maintain in cold weather. As a general proposition, in foundries and other buildings where the work is active and somewhat vigorous, a temperature of 50 to 55 degrees is sufficient. In machine and wood-working shops, it should be from 60 to 65 degrees. In shoe, clothing and other factories employing help where the work is more or less sedentary the temperature should be 68 to 72 degrees.

The basis for determining the amount of heating surface is the most difficult point to settle. In northern climates, the outside temperature occasionally drops down to 10 degrees below zero, and in Minnesota, Dakota and Montana, it goes even lower than 30 degrees below zero. If a plant is designed for these extremely low temperatures, it is too large for the conditions prevailing for 95 per cent. of the year. It therefore becomes a question of very fine judgment as to just what should be the basis upon which to figure. The following table will give a fair idea of what the resulting temperatures will be under the varying outside atmospheric conditions, the basis being zero:

Class of Building.	Temp. Desired Inside Outside 0°	Temp. Outside — 30°	Resulting Inside Temperature. Temp. Outside — 20°	Temp. Outside — 10°	Temp. Outside + 10°	Temp. Outside + 20°	Temp. Outside + 30°
Foundries	50	22	32	41	57	63	70
Machine shops	60	34	43	52	67	73	78
Clothing shops	70	45	55	63	76	81	86
Paint shops	80	59	67	74	85	89	92

From the table it will be noted that for climates where the temperature does not drop below —10 degrees, an inside temperature based on zero outside gives very fair average results; but for climates where the temperature may be from —30 to —20 degrees for several days at a time, the basis is not low enough. For such cases, if the basis is zero, the resulting temperatures should be figured about ten degrees higher than normal or the temperature in the table given for machine shops should be taken for foundries and the temperature for clothing shops should be taken for machine shops.

On the other hand, if the coldest temperature ever reached is zero, and the protracted cold spells are usually at outside temperatures of from 10 to 20 degrees above zero, the basis for determining the size of the plant in zero weather would be 40 degrees at zero for foundries and then taking the tabulated temperatures of foundries for machine shops and the latter for clothing shops.

In this way considerable unnecessary expense can be saved in the initial cost of the plant; it will be smaller and hence much less costly to operate. It is all well enough to argue that the steam can be cut down on the heating coils and the speed of the fan reduced when the weather conditions moderate, but this is usually not done, simply because it is nobody's business to see that it is done, and instead of thus economizing in the cost of operation, one will invariably find the shop windows and doors open wide when it becomes too warm inside. Therefore, the more nearly the size of the plant conforms to the needs during average weather conditions, the less it will cost to operate it, and this can only be brought about by settling first on what temperature will be satisfactory for the few days of extremely cold weather. This applies to any heating system, and if anything, should be given greater weight for any other than the blower system, as no other can be so readily adjusted to varying weather conditions.

With the blower system one or more sections can be cut out of the heating coils and the blower slowed down in moderate weather; or, steam at a high pressure can be turned into the coils and the fan be driven at maximum speed for extremely cold weather.

Another question often arising which is sometimes quite important, is the determination of the heating period within a year. An average from the records for ten years in this vicinity gave the following results:

0 to 10 degrees,	4 days at 24 hours per	day=	96 hours;	at 10 hours=	40 hours.
10 to 20 degrees,	10 days at 24 hours per	day=	240 hours;	at 10 hours=	100 hours.
20 to 30 degrees,	34 days at 24 hours per	day=	816 hours;	at 10 hours=	340 hours.
30 to 40 degrees,	61 days at 24 hours per	day=	1464 hours;	at 10 hours=	610 hours.
40 to 50 degrees,	48 days at 24 hours per	day=	1152 hours;	at 10 hours=	480 hours.
50 to 60 degrees,	53 days at 24 hours per	day=	1270 hours;	at 10 hours=	530 hours.
	Total hours at 24 hours per	day=	5040 hours;	at 10 hours=	2100 hours

In a year of 365 days there are 8,760 hours. Hence, the heating period on a 24-hour basis is 57.5 per cent. of the total; on a 10-hour basis it is 24 per cent. of the total hours in a year.

If we multiply the hours by the degree rise, then on a 24-hour basis we get 180,500 degree hours, whereas multiplying the hours in a year by the maximum rise we get 606,500 degree hours. Hence, the heat required during the average heating period is about 30 per cent. of the maximum capacity throughout the year. Or looking at it from another standpoint, if we divide 180,500 (the degree hours throughout the heating period) by the total hours for this period, we get an average of 36 degrees rise, which is 51.5 per cent. of 70 degrees rise for the same number of hours, viz., 5,040 hours. This is sometimes valuable information when figuring the cost of operating heating plants, as it gives a fairly reliable approximation of what it will amount to.

UNIFORM ACCIDENT AND HEALTH POLICIES.

Western Provinces Draw Up Statutory Conditions for Accident, Health and Automobile Insurance Policies.

The suggested convention of provincial insurance superintendents, referred to last month, took place in Winnipeg on the 5th, 6th and 7th of December. The first convention was attended only by the provincial superintendents of the four Western Provinces, but it is understood that the Insurance Department of Ontario and Quebec will participate in future deliberations. The three days were devoted to the consideration of the conditions under which accident and health and automobile insurance are transacted. A great deal of confusion has arisen in the past owing to the fact that there has been no legal limitation or control of policy forms in these two branches of insurance. Consequently the meaning of each company's policy has been a little different from the meaning of the policies of other companies. The convention was attended by many company managers, and with their advice statutory conditions were drawn up for each class of insurance. The uniform conditions will apply to all policies issued in Manitoba, Saskatchewan, Alberta and British Columbia, and it is understood that Ontario and Quebec will fall in line later.

FREIGHT BY MOTOR TRUCK.

A Great Deal of Freight is Now Being Handled by this Means Between American Cities.

Fleets of motor trucks are carrying freight between Boston, New York, Philadelphia, Washington and Baltimore. Two tanks, each 20 feet long, weighing approximately 12 tons, were hauled on motor trucks from Chester to Reading, Pa. Five tons of supplies for the Red Cross were hauled from Philadelphia to Boston for export—320 miles—in less than two days. Large quantities of yarn and textile material have been hauled from Philadelphia to New York and reshipped to New England points. A fleet of 22 motor trucks has been running on daily schedules between Philadelphia and New York since July 1, making trips also to Washington, Baltimore, Wilmington, Hartford, New Haven, Springfield, Providence, Harrisburg, Reading, Bethlehem, Trenton and other cities. Single motor truck loads of freight frequently have been insured for $50,000. Recently, 14,000 pounds of finished leather were carried from Philadelphia to New York for export, and 18 trucks carried 90 tons of musical instrument records to New York in a single day. Motion picture films are carried regularly between New York and Philadelphia.—*Railway Age Gazette.*

The Increase in Freight and Passenger Tolls

Board of Railway Commissioners Orders a Fifteen Per Cent. Increase After Making a Thorough Investigation of the Added Costs of Operation, Finding That These Costs Were Largely the Result of Advances Made in the Spring and Summer of Last Year

THE Canadian Manufacturers' Association, after careful consideration of the application of the railways for an increase of 15 per cent. in all freight and passenger tolls, which was supported by exhibits showing a heavy advance in the cost of labor, materials, equipment, maintenance and operation of the railways, advised the Board of Railway Commissioners in June last as follows:—

"The Transportation Committee of this Association, after due consideration, has instructed me to file with you the following Resolution:

"'The Canadian Manufacturers Association will not oppose such increase in rates, not exceeding fifteen per cent., as the Board of Railway Commissioners may consider proper, with the exception of tariffs covering coal, coke, milling-transit and similar services, and after giving proper consideration to such articles as are of little value and carry very heavy freight charges, like crushed stone, sand and gravel, on the following conditions:

"'1. That it be considered strictly as a war measure.

"'2. That the Board can satisfy themselves that this increase will enable the railways to provide an adequate service throughout.

"'3. That it shall remain in force for a limited period, to be determined by the Board.'"

The judgment of the Chief Commissioner, Sir Henry L. Drayton, just received, and which is concurred in by the other Commissioners, clearly indicates that before coming to a decision the Board made a thorough investigation of the added costs of operation, and found that these costs were largely the outcome of advances made in the spring and summer of last year, and that they appear to be growing. The increasing demands upon the railways have resulted in necessary work being deferred, reducing efficiency and service to the public.

Crow's Nest Pass Agreement.

The railways have not been granted all that they asked for, especially in the West, as the jurisdiction of the Board was limited because of an agreement made in 1897 between the Federal Government and the Canadian Pacific Railway Company, known as the "Crow's Nest Pass Agreement." Under its provisions the Governor-in-Council was authorized to grant the Canadian Pacific Railway Company a subsidy towards the construction of the railway from Lethbridge through the Crow's Nest Pass to Nelson in consideration of a reduction in tolls on certain commodities. The Board's views on the subject are as follows:

"A specific reduction worked by the special Act limits the general jurisdiction of the Board, having regard to rates. In my view, no matter how great the shortage may be in railway revenue, the Board cannot advance these Canadian Pacific rates beyond the reduction secured under the special Act. Owing to the manner in which our railways are constructed, and the territory occupied by them, no useful object whatever would be served by increasing the rates on other lines, as it would simply mean that they would be carrying no business at the higher rate when the lower was available to the public on the Canadian Pacific rails."

Effect on Agricultural Implement Rates.

The effect of this agreement on the movement of agricultural implements, which is an important one, is as follows:

To	Present Rate.	Contract Rate.	Rate proposed by Railways.	New sixth Class.
Winnipeg	63	68½	72½	71
Brandon	73	80	83	81½
Regina	87	97	100	98½
Saskatoon	95	116½	109½	107½
Calgary	116	125½	133½	132
Edmonton	116	148	133½	132

In this connection the Board says:

"While the present schedule in each instance is below the contract price, the result again shows that in most cases no such increase as that asked could be made."

Effect on Grain and Grain Products Rates.

With regard to grain and grain products, the Board's action is again limited by the above-mentioned agreement, as a result of which a flat increase of 2c per hundred pounds has been allowed to Lake Superior ports, and 15 per cent., with a maximum of 2c per hundred pounds, on local movements. This is considerably less than that asked by the railways.

Effect on Lumber and Forest Products Rates.

Lumber rates in the West are not controlled by this agreement. They have, therefore, been considered in their relationship one to the other, as a result of which certain arbitrary increases have been allowed, which will not disturb the relationship which now exists between the various mills. These arbitrary increases will amount in some cases to 15 per cent., and in others to slightly under, and again, in some instances, will be in excess thereof.

On through movements of lumber commodities from Western shipping points to points east of Port Arthur, a maximum increase of 10 per cent. is permitted.

The Board considers that the adjustment suggested will put the lumber rates in the West on a more scientific basis than they have been in the past. The existing relationship of rates is the outcome of agreements between the railways and the Western mills.

Class Rates.

Fifteen per Cent. in "Prairie Territory."

On general merchandise, which moves under what is known as "class rates," the Board has allowed the increase asked for—viz., 15 per cent. in "prairie territory," which includes Ontario west of Port Arthur, Manitoba, Saskatchewan, and Alberta.

Ten per Cent. in Pacific Territory and From East to Same Territory.

In so-called "Pacific Territory," which covers generally the Province of British Columbia, the increase allowed is 10 per cent. The same increase is allowed in the through class rates from Eastern Canada to the Pacific Coast.

No increase is allowed in commodity rates to Pacific Coast, under which the bulk of the traffic moves.

Between East and West Ten per per cent. to Fort William, Fifteen per cent. beyond.

The class rates from Eastern Canada to the middle West "Prairie Territory" are treated differently because of the increase allowed in the rates by the Commission, effective September 1st, notwithstanding the strong protest filed by the Canadian Manufacturers' Association and various bodies throughout the West, who took the position that there should be no increase pending a decision in the general application. The Board has held down the increase in the proportional rates to the head of the lakes to 10 per cent. Through rates from the East to the West will be made up, therefore, by the addition of 10 per cent. to these proportional rates and 15 per cent. to the Fort William-Port Arthur westbound rates to so-called "Prairie Territory," all of which is subject to the limitations of the Crow's Nest Pass agreement.

The following illustrates the changes in these rates:

	1st class.	5th class.
Rates prior to Sept. 1, 1917	1.60	69
Present rates, effective Sept. 1st	1.66	71
If present through rates had been increased 15 per cent.	1.91	81
Rates allowed based on 10 per cent. of present proportional rates to Fort William and 15 per cent. on rates beyond	1.87	80

Had the rates that were in effect at the time the application was filed been used as the basis for the judgment, the first and fifth class rates from eastern points to Winnipeg would have been $1.84 and 79½c instead of $1.87 and 80c as allowed. However, recognition has been given to the representations made by the Canadian Manufacturers' Association and others in this respect.

Manitoba Agreement.

The position was taken at the Winnipeg hearing by counsel for the Manitoba Government that rates in that Province could not be increased because of an agreement with the Canadian Northern Railway that certain maximum rates would be maintained in consideration of bond guarantees, etc. The Board has ruled that it has the

CLASS RATES

In order that these statements may be understood, the following is submitted in explanation thereof:

The rates appearing opposite the term "present" are the rates at present in effect.

The rates appearing opposite the term "new" are the rates which have been allowed by the Board in the 15% case, and will probably take effect on February 1st or shortly after.

The rates appearing opposite the term "old," which only appear in the statement between Eastern and Western Canada, are the rates which were in effect prior to September 1st, 1917.

EASTERN CANADA

BETWEEN / AND	St John, N.B.	Quebec, Que.	Montreal, Que.	Ottawa, Ont.	Toronto, Ont.	Hamilton, Ont.	London, Ont.	Windsor, Ont.
				Rate Basis Numbers				
Halifax, N.S.	42	56	60	64	72	74	82	86
St. John, N.B.	..	54	58	62	70	72	80	84
Quebec, Que.	54	..	38	44	56	58	66	70
Montreal, Que.	58	38	..	32	46	48	56	60
Ottawa, Ont.	62	44	32	..	42	46	54	58
Toronto, Ont.	70	56	46	42	..	20	32	38
Hamilton, Ont.	72	58	48	46	20	..	28	38
London, Ont.	80	66	56	54	32	28	..	32
Windsor, Ont.	84	70	60	58	38	38	32	..

In cents per 100 pounds

Rate Basis No.	Class	1	2	3	4	5
20	Present	20	18	15	13	10
	New	23	20½	17½	15	11½
28	Present	28	25	21	18	14
	New	32	29	24	20½	16
32	Present	32	28	24	20	16
	New	37	32	27½	23	18½
38	Present	38	33	29	24	19
	New	43½	38	33½	27½	22
42	Present	42	37	32	26	21
	New	48½	42½	37	30	24
44	Present	44	39	33	28	22
	New	50½	45	38	32	25½
46	Present	46	40	35	29	23
	New	53	46	40½	33½	26½
48	Present	48	42	36	30	24
	New	55	48½	41½	34½	27½
54	Present	54	47	41	34	27
	New	62	54	47	39	31
56	Present	56	49	42	35	28
	New	64½	56½	48½	40½	32
58	Present	58	51	44	36	29
	New	66½	58½	50½	41½	33½
60	Present	60	53	45	38	30
	New	69	61	52	43½	34½
62	Present	62	54	47	39	31
	New	71½	62	54	45	35½
64	Present	64	56	48	40	32
	New	73½	64½	55	46	37
66	Present	66	58	50	41	33
	New	76	66½	57½	47	38
70	Present	70	61	53	44	35
	New	80½	70	61	50½	40½
72	Present	72	63	54	45	36
	New	83	72½	62	52	41½
74	Present	74	65	56	47	37
	New	85	75	64½	54	42½
80	Present	80	70	60	50	40
	New	92	80½	69	57½	46
82	Present	82	72	62	51	41
	New	94½	83	71½	58½	47
84	Present	84	74	63	53	42
	New	96½	85	72½	61	48½
86	Present	86	75	65	54	43
	New	99	86½	75	62	49½

WESTERN CANADA

FROM \ TO	Winnipeg, Man.	Brandon, Man.	Regina, Sask.	Saskatoon, Sask.	Calgary, Alta.	Edmonton, Alta.	Vancouver, B.C.
				Rate Basis Numbers			
Fort William, Ont..	85	110	146	164	213	213	287
Winnipeg, Man....	..	48	84	101	146	146	287
Brandon, Man.....	48	..	63	89	134	138	281
Regina, Sask.....	84	63	..	54	101	108	255
Saskatoon, Sask....	101	89	54	..	96	84	251
Calgary, Alta.....	146	134	101	96	..	59	188
Edmonton, Alta....	146	138	108	84	59	..	209
Vancouver, B.C....	287	281	255	251	188	209	..

In cents per 100 pounds

Rate Basis No.		Class 1	2	3	4	5
48	Present	48	41	32	25	22
	New	55	47	37	29	25½
54	Present	54	45	36	26	24
	New	62	52	41½	30	27½
59	Present	59	49	39	30	26
	New	68	56½	45	34½	30
63	Present	63	53	42	31	28
	New	72½	61	48½	35½	32
84	Present	84	70	55	42	37
	New	96½	80½	63½	54	42½
85	Present	85	71	56	42	38
	New	98	81½	64½	48½	43½
89	Present	89	75	60	45	40
	New	102½	86½	69	52	46
96	Present	96	80	64	48	43
	New	110½	92	73½	55	49½
101	Present	101	84	68	51	46
	New	116	96½	78	58½	53
108	Present	108	90	72	54	49
	New	124	103½	83	62	56½
110	Present	110	92	73	55	50
	New	126½	106	84	63½	57½
134	Present	134	112	89	67	60
	New	154	129	102½	77	69
138	Present	138	115	92	69	62
	New	158½	132½	106	79½	71½
146	Present	146	122	98	73	65
	New	168	140½	112½	84	75
164	Present	164	137	110	82	74
	New	188½	157½	126½	94½	85
188	Present	188	156	125	94	84
	New	216	171½	137½	103½	92½
209	Present	209	174	139	105	94
	New	240½	191½	153	115½	103½
213	Present	213	178	142	106	95
	New	245	204½	163½	122	109½
251	Present	251	209	167	126	115
	New	288½	230	183½	138½	126½
255	Present	255	213	169	128	115
	New	293½	234½	186	141	126½
281	Present	281	232	179	140	127
	New	323	255	197	154	139½
287	Present	287	233	180	143	127
	New	330	256½	198	157½	139½

BETWEEN EASTERN AND WESTERN CANADA

In cents per 100 pounds

BETWEEN TORONTO-MONTREAL AND		1	2	3	4	5	6
Winnipeg	Old	160	135	108	83	69	62
	Present	166	138	111	86	71	63
	New	187	155	124½	97	80	71
Brandon	Old	185	156	125	96	81	72
	Present	191	159	128	99	83	73
	New	217½	179½	144	112	94	81½

(Continued on page 1304)

jurisdiction under the Act to deal with such rates. To quote from the judgment:

"In my opinion the Manitoba agreement does not, as a matter of law, conclude the issue. On the other hand, a very strong case must of necessity be made out before rates are permitted higher than those reserved by the agreement."

Eastern Territory Fifteen per Cent.

With regard to the East, the rate situation is very much complicated, being largely controlled by water competition and competition with American lines. In addition to this, some of our railways operate in the United States.

International Rates.

In 1906 the Canadian Manufacturers' Association complained to the Railway Commission of the unfair adjustment of rates against Canadian manufacturers from Detroit and contiguous United States territory to Toronto, Montreal and points east thereof. This resulted in a readjustment removing, to some extent, what was complained of. The rates, however, authorized in the Eastern Rates Case further accentuated the situation. As an illustration: The difference between the fourth class rates Detroit to Toronto and Windsor to Toronto is 7c per hundred pounds, and the difference between the fifth class rates is 5c per hundred pounds in favor of Detroit. A large percentage of merchandise traffic moves under these classes. To Montreal the difference between the Detroit and Windsor rates, fourth and fifth classes, is 9.3c and 5.4c per hundred pounds, respectively, in favor of Detroit.

It will thus be seen that on fifth class traffic the Canadian manufacturer paid 5c more than the manufacturer in Detroit on a movement to Toronto and 5.4c more on a movement to Montreal. The Board allowed the increases in the Eastern Rates Case, it was explained, because of the financial position of the Grand Trunk Railway, and because of a greater demand for commodities made by Canadian manufacturers as a result of the war.

The recent increase of 15 per cent. in rates authorized by the Interstate Commerce Commission in certain portions of the United States and from the United States to Canada resulted in a substantial increase in the rates from Detroit.

This has had the effect of wiping out almost entirely the discrimination complained of. The 15 per cent. now allowed, as far as fourth and fifth classes are concerned, will again put Canadian manufacturers in that district in the same position as formerly. In other words, the Detroit shipper will have an advantage of 2½c on fourth and 4½c on fifth to Toronto and 10½c on fourth and 6½c on fifth to Montreal. The Windsor shipper, on the other hand, will have an advantage of 6½c on first and 4½c on second class rates to Toronto. Montreal has an advantage of only 1c on first and is at a disadvantage of ½c on second and 5c on third class goods and, as previously stated, 10½c on fourth, and 6½ on fifth.

BETWEEN TORONTO-MONTREAL AND

		1	2	3	4	5	6
Regina	Old	221	186	150	114	96	86
	Present	227	189	153	117	98	87
	New	257	214	172½	132½	111½	98½
Saskatoon	Old	239	201	162	123	105	94
	Present	245	204	165	126	107	95
	New	277½	231	186½	143	121½	107½
Calgary & Edmonton	Old	288	242	194	147	126	115
	Present	294	245	197	150	128	116
	New	334	278	223½	170½	146	132
Vancouver	Old	362	297	232	184	158	145
	Present	368	300	235	187	160	146
	New	405	330	258½	205½	176	160½

On coal of all kinds a flat increase of 15c per ton, as asked for, has been allowed.

Lumber rates in Eastern Canada.—The railways are granted an increase of 15 per cent., with a maximum increase of 3c per hundred pounds.

On grain and grain products the same increase is allowed, subject to a maximum of 2c per hundred pounds.

Generally speaking, with the exception of crushed stone, clay, sand and gravel, on which an increase of 5c per ton was allowed, also switching, where local or inter-switching, weighing, demurrage, refrigeration, heated car service, car diversions, re-consignments, storage, wharfage or other special services, the application in Eastern Canada was granted.

The Board has made a very careful survey of the situation, and has endeavored to preserve, as far as it was possible to do so, the present adjustment of rates as between different producing points.

The carriers have not been given all that they asked for. At the time of the hearing it was estimated the increase, if allowed, would add approximately $40,000,000 to the revenue of the carriers. That was calculated upon the tonnage handled the previous fiscal year, and the assumption that the application would be granted in full.

In so far as the West is concerned, there is no doubt but that the Crow's Nest Pass agreement is an important factor, both to the carriers and the general public. It was the governing factor in determining the rates on grain, which is the chief traffic, and whilst the Board has not expressed any opinion, it is questionable whether or not the increase asked for would not have been granted had it not existed. Whilst this agreement is between the Federal Government and the Canadian Pacific Railway, and is not binding upon either the Canadian Northern or Grand Trunk Pacific, the Board takes the position that not only would it be impossible for these railways to charge higher tolls than the former company, but in some instances it would be discriminatory to do so.

As regards class rates and other commodity rates, a general reduction was made, particularly in Saskatchewan and Alberta, effective September 1st, 1914. Reductions were also made in these rates from the East to these Provinces. A general readjustment was also directed in all commodity rates, placing them on a more scientific basis.

In the East, in the application of the railways, referred to as the "Eastern Rates Case," a general increase of approximately 5 per cent. was allowed in class rates, effective December 1, 1916. Arbitrary increases were also allowed on practically all commodities covered by commodity tariffs. As an illustration, the rate on coal from Niagara frontier to Toronto was 60c per ton. This was increased to 66c. The increase now allowed is 15c per ton.

In order to give some idea of the increase in cents per hundred pounds in the "class rates," three comparative statements have been made:

1st. *Eastern Canada*, which shows rates between the principal points in Eastern Canada.

2nd. *Western Canada*, which shows the rates between the principal points in Western Canada.

3rd. *Between Eastern and Western Canada*, which shows the rates between Toronto and Montreal and the principal points in the West.

These statements appear on pages 1302, 1303, and 1304.

PROTESTS AGAINST INCREASE.

Several strong protests from the West against the Board's decision have been made. The Winnipeg Board of Trade have gone direct to the Governor-in-Council, and, according to the press reports, have suggested that the Government take over and operate all railways as a solution of our present transportation difficulties. It is the view of that body that the Canadian Pacific Railway is not entitled to any increase—in fact, is earning more money than it is entitled to under its agreement with the people of Canada, and that by co-ordinating all our different systems, its surplus, if any, should be used to make up the deficit on the weaker lines.

The Manitoba Government and J. H. Ashdown Company, Limited, applied to the Board of Railway Commissioners at a special sitting in Ottawa on January 10th for, and was granted, leave to appeal to the Supreme Court from the judgment, upon the grounds that it (the Board) exceeded its jurisdiction in disregarding the so-called "Manitoba Agreement," an agreement between the Manitoba Government and the Canadian Northern Railway, made in 1901, and sanctioned by a Dominion Act. The agreement empowered the Lieutenant-Governor-in-Council of the Province of Manitoba, under certain considerations, to determine the rates within certain territory, which should be paid to the Canadian Northern Railway and collected from that company. In other words, the rate fixing was taken from the Canadian Northern Railway for certain purposes, and with certain limitations, and passed over to the Lieutenant-Governor-in-Council. One of the considerations was a guarantee of certain bond issues of the Canadian Northern Railway.

An application on behalf of the Canadian Northern for leave to cross-appeal in connection with the Crow's Nest Pass agreement was also granted, with the understanding that both should be argued at the same time, without delay, if possible at the February sittings of the Supreme Court.

Notwithstanding these appeals the Board will allow the tariffs to become effective on the date previously mentioned.

Wheat Rates Postponed.

The Board has since issued judgment and general order postponing the effective date of the advance in rates on wheat to Lake Superior ports until June 1st, 1918.

New Customs Rulings and Regulations

Matters of Importance Affecting International Trade which are Here Brought to the Attention of Shippers and Consignees by the Association's Tariff Department

Prohibited Imports of Intoxicating Liquors

The Commissioner of Customs, Ottawa, has instructed all Collectors of Customs throughout the Dominion that intoxicating liquors for beverage purposes, containing over 2½ per cent. alcohol, are prohibited to be imported into Canada on and after December 24th, 1917, unless purchased for importation before that day.

In regard to intoxicating liquors purchased before 24th December, 1917, which shall hereafter be imported into Canada on or before 31st January, 1918, the evidence as to such purchase is required to be submitted to the Department of Customs before release of the goods from Customs control.

The regulations are established by Order in Council, as follows:

REGULATIONS.

1. No intoxicating liquors shall be imported or brought into Canada on or after the 24th of December, one thousand nine hundred and seventeen, unless actually purchased for importation into Canada before that day and imported into Canada on or before the 31st day of Jauary, one thousand nine hundred and eighteen, and unless evidence satisfactory to the Minister of Customs of the purchase having been so made is submitted to the said Minister.

(2) The provisions of this regulation shall not apply (*a*) to wine for use in Divine service; (*b*) to intoxicating liquor for medicinal purposes; or (*c*) to intoxicating liquor for manufacturing or commercial purposes other than for the manufacture or use thereof as a beverage.

2. For the purpose of these regulations, any beverage or liquor containing more than two and one-half per centum of alcohol shall be deemed to be an intoxicating liquor.

3. These regulations shall continue in force during the continuance of the present war, and for twelve months thereafter.

British Property in Enemy Territory, and Claims Against Persons, Firms, etc.

With a view to ensuring that full information shall be obtained with regard to property belonging to British subjects which is situate in territory in hostile occupation, and also with regard to claims against persons, firms, companies and corporations residing or carrying on business in such territory, a Proclamation, dated 27th November, has been issued, commanding British subjects who are entitled to property of any description whatsoever which is situate in territory in hostile occupation, or to any interest in such property, or have claims against persons, firms, companies and corporations residing or carrying on business in such territory, forthwith to make returns of their said property or claims to the Public Trustee, Kingsway, London, W.C. 2, in such form and with such particulars as he may require, provided that it shall not be necessary to make such returns respecting property or claims whereof returns have, before the date of this Proclamation, been already made to the Public Trustee.

The expression "territory in hostile occupation" means any territory forming part of British territory or of that of an Allied or neutral State which is or may be in the effective military occupation of a State at war with this country.

(*N.B.*—The foregoing is in substitution for the announcement made in the *Board of Trade Journal* of 29th November, the heading to which incorrectly referred to enemy governments. It should be noted that claims against enemy governments should be made to the Foreign Claims Office, Foreign Office, London, S.W. 1.)

Board of Trade Journal,
London, December 13th, 1917.

Customs Departmental Rulings

Black and galvanized clinch rings are ruled not to be entitled to free entry under tariff item 470.

Emery in form of very fine powder, obtained by grading in water by flotation process, ruled to be free of duty under tariff item 669, in effect on and after 9th November, 1917. This item, however, is subject to the war tariff.

American Gentleman, a monthly trade journal, accompanied each month by one or two fashion plates in single copies in sheet form, ruled to be dutiable under tariff item 184. Under this item the general tariff rate is 22½ per cent., plus the war tariff of 7½ per cent.

Brass-Kote, Never-Burn, and Tire-Lac, manufactured by the Northwestern Chemical Company, Marietta, Ohio, ruled to be dutiable under tariff item 247. Under this tariff item the general rate is 30 per cent., plus the war tariff of 7½ per cent.

Canned or cooked corn is ruled to be subject to the war tax. The only articles in tariff item 86 which are exempt from the war tax are those enumerated in Schedule "C" of the French Treaty; and canned or cooked corn is not so enumerated.

Board of Customs Decisions

In Effect on and After January 1st, 1918.

Hub blocks of wood, per sample, rough turned, with hole in centre, but not shaped, declared to be free of duty under tariff item 502. This item, however, is subject to the war tariff. Other hub blocks, per samples, turned to shape, are declared to be dutiable under tariff item 506. Under this latter item the general tariff rate is 25 per cent., plus the war tariff.

Sheepskin robe, lined and made in form of pouch or sleeping bag, declared to be dutiable under tariff item 625. Under this item the general tariff rate is 30 per cent., plus the war tariff.

Se-Ment-Ol, Skalex and Thermite, manufactured by the Northwestern Chemical Company, Marietta, Ohio, declared to be dutiable under tariff item 220 as being proprietary preparations.

Johnson's Prepared Wax (paste) and Johnson's Prepared Wax (liquid) declared to be dutiable under tariff item 252. Under this item the general tariff rate is 27½ per cent., plus the war tariff.

Director of Steel Supply for United States War Industries Board

The following statement is authorized by the Council of National Defence:

Under and subject to the raw materials division of the war industries board of the Council of National Defence, J. L. Replogle, Vice-President of the American Vanadium Company, will act as director of steel supply and will have

charge of the distribution and be responsible for the prompt and proper execution of all orders for iron and steel, other than ordnance, for the United States and Allied Governments.

Mr. Replogle will receive weekly reports from the iron and steel producers showing the tonnage of iron and steel of the various classifications on order for the United States and Allied Governments, as well as domestic and foreign orders for general purposes. He will also keep informed as to mill capacities and mill production, and in cases of retarded output, secure reasons therefor, and in conjunction with the manufacture and the war industries board make every proper effort to remove obstacles which prevent maximum output of war necessities.

Mr. Replogle will at all times work in close harmony with the various departments of the government, which will give him as much preliminary information as possible in order that material can be placed to the best advantage of all concerned and with due consideration with respect to giving mills the best operating conditions to permit maximum output at minimum cost so far as the government necessities will allow.

Mr. Replogle will have all necessary steel statistical records to which the authorized representatives of the various government departments will have access.

Official Bulletin, Washington, No. 159.

British Measure to Control Trade After the War

Extension for a period of three years after the close of the war of the extraordinary powers now exercised by the government in the regulation of imports and exports is the object of a Bill now before parliament. This measure, entitled Imports and Exports (Temporary Control) Bill, presented by the President of the Board of Trade, embodies the most important legislation thus far initiated with a view to protecting and controlling British trade after the war. Unless extended, present powers of control of exports and imports will to a great extent lapse upon the cessation of hostilities.

Section 1, paragraph 1 of the Bill reads as follows:

The Lords of the Council on the recommendation of the Board of Trade may by Order prohibit the importation or exportation of goods of any class, description or origin, or produced or manufactured in whole or in part in any country or place specified in the Order, either generally or from or to any country or place named in the Order, subject in either case to such exceptions (if any) as may be specified in the Order, and to any licenses the grant of which may be authorized by the Order.

While ordinary legislation has given authority for certain measures of control in times of peace, the particular powers which it is desirous to make effective beyond the duration of the war are the following: Prohibition of importation of goods of specified origin; prohibition of exportation of goods of any kind; prohibition of exportation of all goods to any country or place specified.

The passage of the Bill at an early date is deemed probable.

(*Commerce Reports*, Washington, No. 298.)

FOREIGN TRADE OF CANADA

(Comparison 1915, 1916, 1917.)

IMPORTATIONS.

	Month of November.			Eight Months ending November.		
	1915	1916	1917	1915	1916	1917
Dutiable Goods	$26,079,686	$38,083,134	$44,247,634	$173,144,587	$292,613,952	$390,356,337
Free Goods	19,137,873	34,607,657	28,460,805	125,088,015	242,238,334	310,453,802
Total	45,217,559	72,690,791	72,708,439	298,232,602	534,852,286	700,810,139
Coin and Bullion	4,705,933	1,411,478	941,944	10,472,715	22,382,911	9,590,207
Grand Total	49,923,492	74,102,269	73,650,383	308,705,317	557,235,197	710,400,346
Duty Collected	9,440,315	12,116,329	12,829,858	62,063,179	94,293,647	114,936,024

EXPORTATIONS.

Month of November.

	——1915——		——1916——		——1917——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$6,634,887	$22,697	$7,026,024	$19,088	$6,879,290	$258,723
The Fisheries	2,075,877	32,911	2,600,021	34,859	4,315,983	156,248
The Forest	4,556,502	28.045	5,172,272	92,966	5,438,570	6,073
Animals and their Produce	12,113,529	88,334	13,603,193	894,344	23,237,442	967,107
Agricultural Products	53,936,837	64,430	36,789,032	453,276	77,961,781	2,092,848
Manufactures	13,231,022	1,122,758	44,119,094	623,346	68,947,268	3,825,256
Miscellaneous	383,271	145,002	248,714	125,544	535,181	136,723
Total Merchandise	$92,931,916	$1,504,177	$109,558,950	$2,243,423	$187,315,515	$7,442,978
Coin and Bullion	20	9,865,876	55,600	106,109	.....	132,687
Grand Total Exports	$92,931,936	$11,370,053	$109,614,550	$2,349,532	$187,315,515	$7,575,665

EXPORTATIONS.

Eight Months ending November.

	——1915——		——1916——		——1917——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$43,401,193	$7,057,407	$55,268,521	$160,269	$50,472,575	$550,562
The Fisheries	14,036,566	77,516	15,445,407	64,963	18,494,121	275,161
The Forest	38,631,846	381,325	41,876,025	295,578	38,675,205	44,956
Animals and their Produce	69,128,895	1,863,580	80,704,671	3,147,633	124,919,412	4,521,127
Agricultural Products	153,117,173	17,074,751	270,237,892	4,325,134	384,121,556	8,919,963
Manufactures	97,588,572	5,079,051	263,580,148	5,499,299	489,327,640	17,052,760
Miscellaneous	3,458,401	1,018,964	4,479,975	1,035,255	3,262,472	1,505,166
Total Merchandise	$419,362,646	$32,552,594	$731,592,639	$14,528,131	$1,109,272,981	$32,869,695
Coin and Bullion	95	103,049,697	71,392	195,828,583	237,668	2,377,131
Grand Total Exports	$419,362,741	$135,602,291	$731,664,031	$210,356,714	$1,109,510,649	$35,246,826

Officials Who Buy for the U.S. Government

In View of the Fact that A Good Many Canadian Manufacturers are Interested in Contracts for the United States Government, the Following List of Officials, with their Addresses, who do the Buying for the Government will be of Value

(From the "Manufacturers' News")

EMERGENCY FLEET CORPORATION—U. S. Shipping Board, 1319 F Street.

Boilers and Machinery other than Electrical—A. L. Bell.

Electrical Apparatus and Machinery—W. R. McCann.

Anchor Chain, Wire Rope, Hemp Rope, Nautical Instruments, Miscellaneous Equipment and Supplies—J. P. Bourke.

Raw and semi-finished material on which government expects to have prices fixed—G. R. Jasper.

Lumber—Southern Pine and Oregon Fir—F. K. Fawcett.

Lumber—Hardwoods—F. K. Paxton.

Inspection material purchased by Purchasing Department only—E. A. Rebbeke.

Contracts and Specifications—T. D. Adams.

Chief Clerk—J. Birnie.

WAR DEPARTMENT—Engineer Corps.

Major Rose in charge of Purchase, 1419 F Street.

Railway Equipment and Supplies—S. M. Felton, 734 15th Street.

Electrical Equipment—Capt. S. D. Miller, 1419 F Street.

Mechanical and Miscellaneous—Capt. O. M. Zimmerman Winter Building, U Street.

Office of Chief of Ordnance—Carriage Division.

Lieut.-Col. J. H. Rice, Room No. 139, State War and Navy Building.

Field Artillery Section—Lieut.-Col. L. T. Hillman, Field Artillery Material, except guns and ammunition, 18th and E Streets, N.W.

Seacoast Artillery Section—Major J. B. Dillard. Seacoast material and Ry. Mts. and Equipment, except guns and ammunition, 18th and E. Streets, N.W.

Machine Gun Section—Major E. McFarland. Machine Guns and Automatic Guns and Equipment, except ammunition. 1703 New York Avenue.

Motor Equipment Section—Major L. B. Moody. All Motor Equipment for Field Artillery Tractors, Ammunition Trucks, Tanks, etc. 1703 New York Avenue.

Anti-Aircraft Section—Major J. D. Rose. All Anti-Aircraft Mounts and Equipment, except motor equipment, guns and ammunition. 18th and E Streets, N.W.

Equipment Division.

Major J. R. Simpson, Hooe Building, No. 1330 F Street, N.W.

Cotton and Duck Webbing.

Cloth equipment made of cotton duck and webbing, such as haversacks, pack carriers, cartridge belts, intrenching tool carriers, paulins, grain bags, feed bags, etc.

Equipment made of leather, such as saddles, bridles, halters, bayonet scabbards, rifle scabbards, pistol holsters, belts, etc.

Mess equipment, such as canteens, meat cans, bacon cans, knives, forks and spoons.

Hardware, such as intrenching tools, picks, shovels, wire-cutters, stencil outfits, marking outfits, etc. Also small hardware parts to be used in connection with cloth and leather equipment—such parts consist of snaps, hooks, buckles, eyelets, grommets, etc.

Cleaning and preserving materials, such as sperm oil, neatsfoot oil, soaps, sponges, ammonia, ammonium, carbonate, etc.

Steel helmets, including helmet linings and eye guards.

Fencing equipment, including fencing plastrons, gloves, masks, wooden fencing masks and wooden sabers.

Periscopes, trench knives.

Woolen horse blankets, horse covers.

Instruments of precision, such as musketry rules.

Gun Division.

Colonel Jay E. Hoffer, "B" Street and Virginia Avenue, N.W.

Artillery Ammunition Section.

Lieut.-Col. E. P. O'Hearn—Artillery ammunition of all descriptions from 3 in. to 16 in. in calibre, armor piercing projectiles, common steel shell, shrapnel, all types of fuses, primers, fuse setters, all accessories therefor, including paints, containers, packing boxes, etc.

Cannon Section.

Major C. C. Jamison—Cannon of all character from 3 in. to 16 in. (but this section DOES NOT handle small arms, machine guns, carriages or mounts for cannon), forgings for cannon breech mechanisms, firing mechanisms.

Explosives Section.

Major J. H. Burns—Smokeless powder for small arms and cannon, black powder, high explosives of all kinds, raw material used in the manufacture of powder and explosives.

Trench Warfare Section.

Capt. E. J. W. Ragsdale—Hand grenades, chemicals used for illuminating, incendiary and asphyxiating purposes, rifle grenades, aerial bombs, trench mortars.

Raw Materials.

Major Douglas I. McKay—Materials used in manufacture of ordnance material used by this division: Steel, copper, spelter, lead, antimony, etc.

Division "T."

Col. J. W. Joyes, Room 209 National Savings and Trust Building, No. 719 15th Street. Supplies used in the manufacture of ammonia and acids, in purifying and compressing gases.

Office of Chief of Ordnance—Small Arms Division.

Col. John T. Thompson, No. 1801 I Street, N.W. Small arms, rifles, automatic pistols, revolvers, sabres, scabbards, bolos, bayonets, shotguns, small arms ammunition, targets, target material, marksmen's insignia.

The above-mentioned articles are being purchased by the Small Arms Division only in their complete state. The components entering into the manufacture of these several articles are being procured for the several contractors furnishing supplies to this Department by the purchasing contractor of

small arms ammunition manufacturers, No. 50 East 42nd Street, New York City.

A list of the components purchased by that Bureau follows:

Steel (not allotted by government).
Brass Rod Cleaners.
Rivet Wire.
Screw Bracket Butt Plate.
Butt Plates.
Cleaners Bristles.
Cord.
Black Walnut Stocks.
Thong Case and Caps.
Thong Cord and Bristle Brush.
Emery and Emery Wheels.
Carborundum Wheels.
Bortz.
Sling Straps.
Scabbards.
Drills.
Screw Drivers.
Oil.
Lard.
Mineral.
(Not allotted by government.)
Sulphuric Acid.
Cotton Waste.
Chlorate of Potash.
Lead Sulphocyanide.
Antimony Sulphide.
Tri-nitrotolunen.
Manganese copper.
Clip Board.
Packing Cases.
Deadening Felt.
Crucibles.
Bandoleers.
Clips.
Coke.
Newsboard.
Solder.
Charcoal.
Screw Hooks and Thumb Nuts.
Varnish Coating.
Iron Screws No. 13, 2 in.
Wire Nails, 8 Penny.
Shellac.
Soda Ash.
Rosanaline.
Alcohol, denatured.
Terne Plate.

Purchases for Signal Corps—Aircraft Division.

Old Southern Railway Building, 119 D Street, N.E.

Motors and Parts—Lieut. H. H. Emmons.

Planes—H. L. Shepler.

Ordnance and Instruments for Signal Corps—L. S. Horner.

Woods, Etc.—Major C. R. Sligh.

General Equipment—Captain H. D. Moore.

Supplies Division—State, War, and Navy Building.

Officer in charge, Brigadier General A. L. Smith, Q.M. Corps. Assistant:

Fuel, forage, specifications for uniforms, etc.—Lieut.-Col. William E. Horton.

Miscellaneous supplies, such as typewriters, adding machines, printing outfits, stationery, office furniture, field ranges and field ovens—Lieut.-Col. George H. Penrose.

Transportation Division.

Officer in charge, Col. C. B. Drake, Q.M. Corps.

Col. Drake is in charge of Motor Transportation—Automobiles, motor trucks, motorcycles, bicycles, tractors, trailers, tires, oils and greases for same; also in charge of water transportation—supplies except subsistence, in connection with the transport and harbor boat service.

Assistants: Major J. S. Fair in charge of Remount Service—wagons and parts, horse-drawn ambulances, carts, saddles, harness, harness parts, stable equipment, and the like.

Capt. H. A. Hegeman, in charge of Transport Repair Shops—Machinery and equipment for repair shops being organized for service abroad.

Major C. M. Curran, in charge of Rail Transportation—all kinds of railroad equipment, repairs, etc., after installation.

Major J. W. Furlow, in charge of engineering features of Motor Transportation—in connection with testing of motor trucks with the view of standardization.

Cantonment Division—15th and M Streets.

Officer in charge: Brig.-Gen. I. W. Littell, Q.M. Corps.

Assistants: Capt. R. C. Marshall, Jr. This division has charge of constructing the National Guard Camps and National Army Cantonments, and of the purchase and installing of material required to complete such camps and cantonments. A chart showing the division of that office is enclosed.

Construction and Repair Division—15th and M Streets.

Officer in charge: Major C. O. Zollers, Q.M. Corps

Supplies in charge of division are as follows:

Barracks, quarters, storehouses, etc.
Plumbing, heating and lighting in new buildings.
Fences.
Post Baking Ovens.
Gymnasiums, bowling alleys, etc.
Shooting galleries and ranges.
Rentals, including recruiting stations and lodgings.
Permanent picket lines.
Flagstaffs.
Heavy furniture for officers' quarters.
Wall lockers.
Track and Wagon Scales.
Refrigerators.
Drafting and Surveying Instruments.
Power Plants, including lighting, heating, refrigerating and pumping.
Laundries, crematories, etc.
Electric lighting systems.
Purchase of light.
Incandescent lamps.
Field laundries.
Installation of elevators.
Saw mills and saw mill equipment.
Steam cooking appliances.
Moving picture machines and equipment, including folding organs, chairs and tables.
Assembly tents and chaplains' equipment.
Wharves, sea walls and retaining walls.
Dredging.
Purchase of water.
Roads and walks.
Water distributing systems.
Crematories, incinerators and odorless excavators.
Sewerage systems and purification plants.
Railroad rolling stock and equipment—first installation.
Drainage.
Care and improvement of grounds.
Railway on reservations.
Time and fire alarm systems.
Water systems. Fire apparatus.

NAVY DEPARTMENT—Bureau of Ordnance.

New Interior Building, 18th and F Streets, N.W.

Matter of Policy—Rear Admiral Ralph Earle, Chief of Bureau.

Requisition for Material for all Yards and Stations—Commander T. A. Kearney, Assistant Chief.

Office Supplies—E. S. Bradt, Chief Clerk.

Guns and Breech Mechanisms—Lieut. N. W. Pickering.

Turret Mounts, Recoil Springs—Lieut. L. S. Bye.

Powder and Fuses—Lieut. G. L. Caskey.

Torpedoes—Commander T. V. Ogan.

Armor and Projectiles—Lieut. Com. R. S. Holmes.

Supplies (Ships)—Lieut. Com. W. T. Lightle.

Inventions—Rear Admiral R. R. Ingersoll.

Fire Control—Optical Instruments, Range Finders, Binoculars—Lieut. Com. W. E. Van Quken.

Mounts (other than Turret) and Small Arms—Lieut. Com. S. C. Rowan.

Mines and Mining; Wire Ropes—Commander S. P. Fullinwider.

Member of Priority Board—Rear Admiral N. E. Mason.

Armor and Projectile Plant, to be Constructed at Charleston, W. Va.—Commander F. H. Clark.

Experiments—Lieut. T. S. Wilkinson.

General Inspector—Commander A. L. Norton.

Bureau of Supplies and Accounts.

State, War and Navy Building.

Admiral Samuel McGowan, Paymaster-General.

Bureau of Yards and Docks.

Navy-Army, New York Avenue.

Frederick Harris, Chief.

Trade Relations of West Indies and Canada

Strong Argument Presented in Favor of Forming a Commercial Union Between the British Possessions in the West Indies and the Dominion of Canada

By A. T. DRUMMOND, LL.D.

(Reprinted from the "Monetary Times")

[The following article was intended by Dr. Drummond to present to the merchants and manufacturers of Canada the case for closer trade relations with the British West Indies. The difficulty in the way of trade in the past has not only been the very small preferences, but the long delays in transportation between West Indian points and Canada, which in the case of perishable products, has been a serious drawback. With a fast freight service and the co-operation of the railways, these disadvantages should be obviated.—Editor.]

THE proposal for federal union of the different Crown colonies comprised under the term British West Indies, and for closer commercial relations with Canada, has aroused wide interest in these colonies. A feature in this interest, important to us, is the general desire amongst the mercantile community, and in the press, for an expansion of trade with this country. The time appears to be thus opportune for considering how this expansion can be brought about. Federal union of these colonies would, without a doubt, greatly increase their internal development, and the opportunities and facilities for enlarged trade, but, in the past, obstacles have been raised to federal union, resulting from each colony having its own tariff, and control over its own legislation and expenditure, and, it may be added, a jealousy of each other, lest in any federation, certain colonies would secure favored treatment to the detriment of the others. Some of these obstacles, when viewed in the light of Canadian experience, under similar circumstances, have greatly less weight than British West Indians appear to give to them, whilst others will be overcome by the large financial resources of the federation, as compared with the limited means of the individual colonies, and the utilizing of these resources for internal developments, so much needed in every part of the federation, and for intercolonial and foreign ocean, cable, wireless and air services, so essential in the interests of trade. Apart from these considerations is the vastly greater prestige which the federation would have in negotiating commercial relations with the rest of the empire and with foreign states. And then the war, which has emphasized the need of closer ties between the different sections of the empire, and of developing their resources to the utmost, is leading many of the foremost men in the British West Indies to join in the determination, now so prevalent in Great Britain and the Dominions and other colonies, that obstacles in Imperial problems must be met in a broad spirit and with an earnest desire to overcome them.

Can Supply to Canada.

What then is the nature of the trade which can thus be expanded, and what facilities must be afforded in order to give effect to this expansion? Each country has very many natural, or partially prepared products which the other needs in large quantity, and cannot itself produce, whilst the British West Indies requires many lines of manufactures which Canada can readily supply. These tropical colonies can furnish us with rubber, balata, unrefined sugar, molasses, rice, raw cotton, cocoa, coffee, cocoanuts, tapioca, arrowroot, tea, grapefruit, shaddocks, oranges, mangoes, lemons, limes, bananas, plantains, onions, ginger, pimento, sweet potatoes, yams, broom corn, hemp, tobacco, chicle and other gums, cohune nuts, copra and other sources of oil, asphalt, dyewoods, and special timber for structural, machinists' and cabinet work. There is a rapidly increasing consumption in Canada of most of these products, far larger than most West Indies people imagine, as they would find if they consulted our trade returns, but some of these products are not yet familiar to us, and others, like grapefruit and sweet potatoes, are thus far, regarded rather as luxuries. With the mango, said to be one of the most delicious fruits of the tropics, and with care, to bear transportation, we are still unacquainted, whilst the yam, which is a common vegetable in the tropics, and can readily be exported, and which Mr. Aspinall, of the West India committee of London, commends to the English people, as much preferable to our potato, is quite unknown to most of us.

Products of West Indies.

On the savannahs of British Guiana, and also in British Honduras there are extensive opportunities for the breeding of cattle, leading thus to the export of frozen meat, of hides and of various by-products. In the forests, especially, of these two colonies, there are numerous woods of great value, including the greenheart, widely known for its strength and for its durability, whether under water or exposed to the atmosphere; the mahogany, crabwood, locust, rosewood and others valuable for cabinet work; and the mora, wallaba, simarupa, cedar and dalli, which, with others, are somewhat softer woods, useful for house construction, shipbuilding, railway work and general plantation purposes. Still other trees supply latex, gums, oils and dyes abundantly, and, like the rubber, balata, sapodilla, logwood, fustic, tonkin bean and cohune and cocoanut trees are well known to commerce. Most of the trees there attain a commercial size in one-third to one-half of the time required by the slower growing trees of our northern temperate climate. Probably all of these trees will improve with cultivation. The Para rubber especially, being a native of northern Brazil should do well, and its successful introduction into the Malay Straits Settlements, where there are to-day nearly one thousand estates of an average of about six hundred acres each, devoted to it, and employing towards a quarter of a million laborers, should be an incentive to effort, especially in British Guiana and Trinidad, which lie in about the same latitude.

With expanding markets near at hand, like the United States and Canada, and with enterprise and increased capital, all of these important natural products can be developed on a vastly greater scale. There can be no question that Canadian capital and activity will be directed in a large measure to the British West Indies, if these Crown colonies enter into a federal union among themselves, and a commercial union with this country. Not only are there ample areas available in practically every colony for the growth of the numerous tropical products already referred to, but many of these now shipped in the raw, or partially prepared state, can be ad-

vantageously manufactured, within the country, into one or other of their ultimate products, thus saving large bulk when exported. There are also railways to be constructed, water powers to be developed, transmission lines to be built for light and power, harbors to be created or deepened, steamship services to be established, whilst research will find an almost untouched field in these tropical countries for both old and new materials, and for new methods in adapting these materials to industrial purposes.

Can Supply to the West Indies.

Our manufacturers and merchants have given but small attention in the past to these colonies, with the result that the greater enterprise of New York, Boston and New Orleans has secured for these cities large business which rightfully belonged to Canada. It is not that Canada does not produce, on an ample scale, what the British West Indies wants, and does not consume largely what these colonies produce, but our agricultural interests have found ready and convenient markets in Great Britain and the United States, and our manufacturers have for some years been wholly engrossed with the expanding home market, whilst our buyers of West Indies products have in most cases, preferred to take advantage of the quick deliveries, even at what must be higher prices, from New York to Boston, rather than submit to the delays and risks of importing direct by way of Halifax. To indicate the wide range of Canadian products which we can supply, and which the West Indies require, it is only necessary to mention such articles as wheat, oats, flour, fresh, dried and canned fruits and vegetables, fresh, dried and canned fish, beef and pork in barrels, condensed milk, dressed and undressed lumber, furniture and household appliances, shooks and staves, carts, wagons and automobiles, manures and fertilizers, coal, coke and patent fuel, paints, oils and varnishes, musical instruments, asbestos goods, books and educational apparatus, newsprint and other paper supplies, wearing apparel, boots and shoes, sewing machines, wire fencing, steel structural materials, agricultural machinery and implements, electrical, mining, marine and general machinery, steamships and sailing vessels, railway, telegraph, telephone, wireless and aerial material and appliances, surgical instruments, drugs and the very varied chemical products.

Trade Between Two Countries.

Presently the preferential tariff between this country and these Crown colonies has not led to any very marked extension of business between them. Not only were the concessions in rates of duty small, but prior to the war, manufacturers here were too much taken up with the profitable home trade, whilst transportation facilities, both by rail and ocean, were inadequate, and did not afford that quick dispatch which perishable articles from the West Indies, and agricultural products and manufactures from Canada, required in order to build up an important trade. The war has, however, changed conditions in Canada. With the enormous export business which has resulted from the British and foreign demand for munitions, military equipment, railway material, wearing apparel, food supplies, mining products and machinery, Canadian manufacturers have gained a wide experience in the export trade and are desirous of continuing in it after the war is over.

What can then be done to foster and expand it when munitions and military material are no longer required? It cannot be too strongly pointed out that this one market, that of the British West Indies, is comparatively close at hand, is waiting for further development, and possesses these direct advantages that the merchants there are strongly desirous of having more extensive and closer relations with us, and that, already, throughout these colonies there are active branches of two leading Canadian banks, ready to assist with information and banking facilities in developing our trade. But even these advantages would be futile if they are not supplemented by three transportation conditions: (1) More frequent and quick steamship services between the British West Indies and Halifax; (2) very fast through freight services between the Halifax piers, Montreal and Toronto, timed to meet the arrival and departure of the steamships; and (3) through freight rates and charges between the West Indies and Montreal and Toronto, via Halifax, not exceeding those via New York and Boston. To meet the conditions which the special trade requires, there must be cold storage facilities at the shipping points; cool, ventilated accommodation, especially for fruits, in both steamships and cars; prompt transfer at Halifax to and from steamships and cars; and such a fast service by sea and rail that the time taken between the steamship's departure at British West Indian points and the arrival of the cargo in Montreal and Toronto will not exceed fifteen to sixteen days, with a similar time for return cargoes of Canadian products to the West Indies. To effect this, will require organization and close co-operation from start to finish, between the steamship and railway authorities, and a determination on the part of both to develop the business.

Quick Freight Service Certain.

Conditions now exist which make it quite possible to inaugurate a fast freight service, and the Intercolonial Railway management, to whose attention the matter has been brought, proposes to give every consistent aid when the time comes. With the Intercolonial and the new Transcontinental roads forming, together, under Dominion government auspices, a double track system between Quebec and Moncton, we now have a continuous, connected double track from Toronto and westward, over the Grand Trunk and the government railways, to Halifax, except the short distance between Moncton and Halifax. Thus a fast service has become practicable.

The food controller, Hon. Mr. Hanna, has made experiments in fast delivery with car loads of fresh fish from Nova Scotia to Toronto, and they appear to have been successful. Thirteen to fourteen knot steamships should cover the voyage from British Guiana to Halifax in nine days, from Trinidad in eight days, from British Honduras in ten days, and from Jamaica in less than eight days. These facts demonstrate that West Indian products can be delivered in Montreal and Toronto in not much over two weeks from loading of the steamship in West Indian ports. There should, with such facilities, be no reason left to Canadian importers why they should continue to buy so very largely West Indian products in New York and Boston, and equally no reason why our manufacturers and merchants should not develop in the British West Indies a large outlet for Canadian manufactures and agricultural products. The steamships will be forthcoming whenever there is the business in prospect, and, suggestively, there could be, with advantage, two steamship services, each weekly, the one between Halifax, Bermuda, Barbados, Port of Spain and Georgetown, British Guiana and the other between Halifax, Nassau, Kingston and another port in Jamaica, Belize and Guatemala's outport at the terminus of the Guatemala Railway, whilst there would be interinsular steamship services to connect the other islands closely with the through steamships at Barbados, Port of Spain, and probably, in time, Nassau.

Physical Examination of Factory Employees

An Article Showing the Advantage to the Workman of Physical Examination, in that He is Not Only Protected from Obtaining Employment Harmful to Himself, but Those Already in the Industry are Protected from the Introduction Among Them of Contagious Diseases

By DR. WILBUR E. POST

(Reprinted from the "Manufacturers' News")

THE physical examination of employees is understood as a medical examination, for it includes the investigation of all of those factors which bear upon the health of the employees. Such examinations are applied to various groups, such as the examination of applicants for employment, of those who are in ill-health and seeking vacation, those who are ill and seek medical advice, those who have been ill and consider themselves ready to return to their positions, and those who have been injured in the service.

Determining Presence of Disease.

The method of examination is the same for all, for the primary object is the same, namely: To determine the presence or absence of disease or abnormality, and if present to determine its nature and advise proper disposition of the case. In the department in which I work the procedure is as follows: If the applicant is a male he strips to the waist; a specimen of urine is obtained, and while the first part of the physical examination is made this specimen is examined by another. The patient is weighed; his temperature, pulse and respiration taken. Note is made of the condition of the scalp and skin, deformities of the limb or body —scars and old injuries. The eyes are examined for evidence of injury, pupil reaction is tested, and irregularities of outline noted. The vision is tested with the aid of Snellen's charts and a test for color blindness made. The ears are examined for impacted cerumen in the canal and the condition of the membranum tympani noted. The hearing is tested by the whispered and spoken sounds. The nose is examined for deformities, perforations of the septum, etc., and the sense of smell (gas, alcohol and vinegar). The condition of the teeth, tonsils and thyroid are noted. The heart is examined by determining its outline, sounds, and rhythm. The lungs are examined, special attention being directed to any signs of tuberculosis. The examination of the abdomen includes palpitation for the spleen, liver, kidneys, any abnormal masses or tenderness and for the presence of hernia. Examination of the genitalia includes a search for varicocele, nodes in the epididymis, or for evidence of venereal disease. The lower limbs are examined for evidence of deformities, old injuries, scars, or evidence of arthritic affections. The condition of the lymph nodes is noted and the presence of knee kicks.

In the course of such a general examination one will have inquired concerning the habits of the applicant in regard to tobacco and alcohol, and more or less regarding his mode of living. Inquiry will also be made regarding previous illnesses and the medical record of the family.

Data on Manner of Living.

Special examinations are indicated from time to time, such as the examination of the blood, sputum, stomach contents, stools, digital, or proctoscopic examination of the rectum, the prostate and prostatic fluid or urethral discharge. In some cases special investigation of the nervous apparatus or mental condition is indicated.

As the examination proceeds the information obtained is dictated and typewritten upon the report blank, or, if it seems more advisable, parts of the information are reserved for later dictation.

In case of the female applicant the same general principles govern the method of the examination. The following differences are, however, always observed: A nurse prepares the patient—embarrassing exposure of the patient is avoided by covering the applicant's chest with a sheet. No examination of the genitalia or pelvic organs is made except with the full consent of the patient, and in the case of a young woman such an examination is made only when the mother or proper relative is present. Frequently the desired information, in such a case, can be obtained through the family physician.

Specialists Sometimes Needed.

Cases are met which will require the expert examination of the eye or ear specialist, of the oral surgeon or of the roentgenologist. This case may be referred to the proper department of a dispensary, hospital or even to a private office. In any case this principle of the medical examination of employees should be observed—do whatever is necessary to obtain satisfactory knowledge of the medical condition of the person examined.

Obviously a thorough physical examination is advocated and the programme indicated would seem to be elaborate, but fairness both to the employee and employer demands that our conclusions be definite. In all of my medical work I have learned of no short cut, magical method of gaining definite knowledge of the physical condition of a person, without actually making such an examination. In a physician's work in a dispensary, hospital, office or home, honest, reliable service depends upon his practice of such a system. And as long as all men are fashioned after the same image I shall not expect that we can safely follow a less thorough system in the medical work of the industries. Furthermore, when the work is mixed with reasonableness and a sincere interest in the welfare of those concerned, it is almost always appreciated by the employee and we believe it constitutes a valuable asset of the company.

Organization of Office Help.

The organization of the office help is an important factor in the effectiveness and practicability of our scheme. An able young person can easily be taught to prepare the patient, examine the specimen of urine for its reaction—specific gravity, albumin, sugar, and to place the centrifugal sediment under the microscope where it can be quickly examined by the physician. He can also get the weight of the patient, temperature, pulse and respiration—make simple tests of vision and hearing. He can even be taught the method of staining the sputum and counting

blood. The same person records the report with the typewriter as dictated; he maintains the diagnosis index and has charge of the filing of the reports and maintaining a name index.

Further advantage may be gained in the office organization where more than one physician is employed in having those physicians who are specially trained in various lines of medical work—one may be an internist, another a surgeon, another a laboratory man, another an eye or ear specialist.

The question naturally following such an examination is what disposition is made of the case in which disease or abnormality is found. Quite obviously this will depend upon the disease or abnormality. No concrete rules can be made, but a few general principles I believe are better guides:

First. Persons suffering from communicable diseases are refused employment, and through co-operation with their family physician, a dispensary or hospital, or other proper channel, are directed how to take proper precautions and to recover.

Second. Those suffering from any condition which in their own interest makes it inadvisable for them to assume any regular duties are likewise directed as to the best means of obtaining medical attention. This would include those suffering from serious heart or kidney disease, extremely high blood pressure, acute infections or malignant tumors, etc.

Third. Those suffering from conditions that are subject to remedy and at the same time do not forbid employment of the person are advised concerning their condition, and through co-operation with their family physician or otherwise, that person obtains the proper medical attention while he is given employment, but his final approval is temporarily withheld. This applies to those suffering from badly diseased conditions of the teeth, tonsils, to certain diseases of the skin, and to a large number of youths who suffer from the so-called albuminuria of adolescence.

Fourth. Those suffering from a more or less permanent infirmity, but not incapacitated, are given appropriate employment. For instance, a man suffering from a marked leak of a heart valve is not given work on a heavy truck, but is given employment requiring only mild physical exertion. The epileptic is not given work leaving him exposed to dangerous falls. These general principles govern the question of disapproval for employment, and may be summed up in the statement that only those are disapproved, medically, whose condition dictates that employment in the industry where employment is sought would be injurious to the applicant himself. Actual statistics from my own department show that since the establishment of a more thorough medical examination the percentage of absolute rejections has diminished from over 9 per cent. of approvals to slightly over 2½ per cent.

Contagious Disease Avoided.

The advantages to the employee of physical examination is apparent in these principles, for not only is the applicant protected from obtaining employment harmful to himself, but those already engaged in the industry are protected from the introduction among them of contagious diseases, incompetent co-workers, or those liable to cause accidents. The advantages to the employer are quite as great—the efficiency of the working force is increased, the employer is protected against unjust claims for injuries received previous to employment, or when the employee is not in service.

The loyalty of the employee to the employer is noticeably greater when he learns to rely upon the honest and thorough work of the medical department. In fact, a striking and gratifying feature of this whole work is that whatever helps the employee helps the employer, and what helps the employer helps the employee. I am happy to say that I have never seen a case in which this principle did not hold good.

One cannot refrain from mentioning some of the problems for the future, suggested to all who have been interested in this work. A great saving of time and expense, an increase of efficiency and the promotion of the general health of the community will be obtained when our methods of examination are standardized—when a physical examination becomes a requirement to all industries. It may be, at some time, certificates of examination may be issued which will be honored in medical departments of various industries, providing those certificates are issued by medical departments maintaining proper standards. The possibility of having those certificates issued by a government bureau or under a system of health insurance is also a subject for due consideration. The problem of periodical examinations of employees is a very timely one. It is not so long ago that the life insurance companies and the Life Extension Institute have demonstrated for us the enormous advantages of such periodical examinations. And if, by conservative estimate, the cost of such examinations is repaid twenty-fold to life insurance companies in the better health and prolonged lives of its policy-holders, who can estimate the advantage to our industries and to our country at large of the universal practice of examining the working men.

Our Safety First Engineers have come to our industries and diminished accidents to the extent of 50 per cent., and I believe that it is no false hope to expect as great a prevention of disease among workmen by the practice of the physical examination of the employee.

NEW PULP AND PAPER INDUSTRY.

Pulp and Timber Limit in New Ontario Granted to Company, Which Will Erect Mill.

The Ontario Government, in carrying out its soldier-settlement plan for Northern Ontario, has provided for the building of a big pulp and paper industry in the Kapuskasing District, in the townships being opened for the soldiers. Hon. G. Howard Ferguson has awarded to Messrs. Munday and Stewart, of Toronto, who are understood to be representing United States interests, the right to cut pulpwood and timber upon the Kapuskasing pulp and paper limit. The company to be formed will be required to erect at Kapuskasing a pulp mill costing, with machinery and equipment, not less than $1,000,000; to operate it so that the daily output shall be not less than 100 tons of pulp, and to employ an average of 200 hands for ten months of the year. The company will also be required to erect a paper mill with a daily capacity of 75 tons a day whenever directed by the Government. A flat rate of 75 cents per cord for all pulpwood and $15 a thousand for pine will be paid to the Ontario Government.

ORDER FROM THE ORIENT.

Manitoba Rolling Mills Co. Get Order for Iron and Steel Bars from China and Japan.

A large order has been secured by the Manitoba Rolling Mills Co. from the Orient for iron and steel bars. This is required for repair and upkeep of railway equipment, as well as in shipyards and engineering trades of China and Japan. This is the beginning of what will probably develop into a large export business between Western Canada and the Orient. The Manitoba Rolling Mills Co. have only been operating for the last eighteen months and during that time their output has increased until to-day it approximates 2,000 tons per month of finished product. They are also supplying considerable tonnage to be used in connection with wooden shipbuilding in Canada, for the upkeep of railway rolling equipment and engineering trades, as well as for use in the manufacture of agricultural implements.

Catalogues and Booklets

DRIVE FOR CLAY-WORKING PLANTS.

A catalogue which illustrates very clearly the efficiency of the link-belt silent chain as a means of power transmission in clay-working plants has been issued by the Link-Belt Company. The severe conditions imposed on gear drives in clay-working plants have made these older forms of power transmission give way to the more modern kind of drive. The link-belt silent chain is credited with combining the advantages of the belt and gear drives. It maintains over 98 per cent. efficiency, is flexible, compact and durable, and operates on short or long centres equally well. The catalogue gives a good description of the link-belt, backed up with a series of excellent illustrations, which scarcely need letterpress to describe their significance.

CENTRIFUGAL PUMPS.

It is a most elaborate catalogue that the Canadian Allis-Chalmers, Limited, have produced to describe their centrifugal pumps and centrifugal pumping units. At the outset it is pointed out that, while this type of pump has become one of the most widely used, it is without doubt the one about which the least is known. A careful description of the characteristics of the pump are, accordingly, given. Following this come details of various types, such as Type "S," horizontal multistage, and special types. A section covers constants, rules, friction tables and instructions pertaining to the selection and operation of centrifugal pumps. Finally, there are instructions for installing and operating horizontal centrifugal pumps. Altogether it is a valuable catalogue, which should be on fyle in every office where pumping facilities are or may be required.

CALENDAR—ROLL OF HONOR.

The British Aluminum Company, Limited, have adopted an interesting method of publishing the roll of honor of their staff and employees who have answered the call of King and country. The roll is printed on the back of a calendar, and may be hung up either as a roll of honor or a calendar. The calendar itself is attached to an artistically executed photogravure of the dam at Kinlochleven, and bears the inscription, ascribed to H.M. the King, "I have implicit confidence in you, my soldiers. Duty is your watchword, and I know your duty will be nobly done."

INTERESTING PRODUCTS BOOK.

Another Du Pont Products book has just been issued by E. I. du Pont de Nemours & Co. and its associates, Du Pont Fabrikoid Co., Du Pont Chemical Works, The Arlington Works and Harrisons, Inc. It lists all the products of the above concerns and describes their uses as well as who uses them. This large firm is constantly expanding its industrial activities along constructive lines, and the information contained in the new products book is the last word, but, of course, it takes time to print such a book; hence, if any new products were put on the market since the book was started they may not be listed.

Few people are aware that the ramifications of the explosives business are so extensive and varied that they involve the manufacture of various chemicals, distillation of wood and of gas tar, and the production of the chemical bases of industries apparently remote from the explosives business.

On account of the enormous expansion of their business, made necessary by the war and by the inability of the United States to longer import many of its chemicals and raw materials, it became necessary for the Du Pont Company to greatly expand its industrial activities, and the purpose of the Du Pont Products book is to tell the public of the hundreds of commodities they make and sell, many of which until recently had never been made on this continent.

THE VILLAGE BEAUTIFUL.

One of the most attractive contributions to the literature of industrial welfare work has just been made by R. J. Caldwell, vice-president of the Connecticut Mills Company, who tells in a charming booklet, entitled "The Village Beautiful," how his company has established such a community at Danielson, Conn.

"The village beautiful for mill operatives is an appealing idea," begins Mr. Caldwell. "It has two aspects which recommend it as an advanced move towards a desired goal. It gives labor an inspiring home which prevents removals, and capital an economic return for its investment. It has been demonstrated that a mill worker who has a good home is worth more than one who lives in a shack on a mill alley of the old style of congested housing. Also that an investment in houses for mill operatives will bring a good return on the money. This makes the Village Beautiful development a practical solution of certain phases of the labor question and introduces a co-operative relation between the operator and the operative that reaches outside the mill, mutualizes their interests and solidifies their relations."

The booklet describes the Danielson system in detail, and gives a series of interesting illustrations of its features. Any Canadian manufacturer interested in the housing problem should secure a copy of this booklet.

FROM 1847 TO 1917.

John McClary, the veteran London manufacturer, marks the New Year by sending out a card of greeting to his friends in business. Seventy years ago Mr. McClary established, in a very small way, the business of which he continues to be the honored head, and since then this business has grown to be the largest manufacturing concern of its kind in the British Empire.

"We have been honored during the seventy years of our existence," writes Mr. McClary, "by the close friendship of the men with whom we have business relations and of the larger public that knows us through the use of our products. We are proud of this friendship; proud of our record; proud of the men with whom we deal—men who are themselves 'making good' in their chosen lines. It is their encouragement, their 'well done' that helps us forward."

LINK-BELT COMPANY'S CALENDAR.

The calendar for 1918, which has been issued by the Link-Belt Company, combines serviceability and effectiveness as an advertising medium in satisfactory proportions. It is a 12-sheet production, 16 x 25 inches in size and printed in three colors. A useful feature is the printing under the main calendar for the month of smaller calendars for the preceding and succeeding months. This enables the business man,

without having to turn the sheet, to trace up any day in three months. The figures are large and can be seen from a distance of many yards.

The advertising feature consists of a beautifully executed illustration on each sheet, of some product or products of the company, several of these showing the apparatus as in use in the factory. The company states that it will be glad to send a copy of the calendar to any responsible concern that will write for one.

"TURNING WASTE INTO PROFIT."

This is the title of a 28-page booklet, size 8½ x 10¾ inches, recently issued by the Prest-O-Lite Co., Inc., Toronto, dealing with the importance of conservation of steel and iron through oxy-acetylene welding and cutting. This booklet is profusely illustrated with half-tone engravings showing many examples of Prest-O-Lite welding repairs, which have saved money for manufacturers, railroads, mines, machine shops, engineering and industrial plants in almost every line. We have been advised by the Prest-O-Lite Company that a copy of this booklet will be mailed free of charge to anyone interested.

UNION BANK'S FINE SHOWING.

During Its Last Fiscal Year Assets Were Increased by Over Thirty-four Millions, or Over 13 Per Cent.

The report of the Union Bank of Canada for the fiscal year 1917, which closed on November 30, shows that the remarkable rate of growth achieved by this enterprising institution during the two previous years was not only maintained in 1917, but actually increased. This was the first year of office of the new general manager, Mr. H. B. Shaw, and also the first year of operation of the bank's New York agency, established early in 1917 with an advisory committtee, including Messrs Stuyvesant Fish, Cornelius Vanderbilt and Gilbert G. Thorne. The results of this development are such as to show that the directors and shareholders have no reason to regret either of these decisions.

The assets of the bank now exceed the sum of $143,000,000, which is an increase of more than 13 per cent. over those of 1916. The three years of the war period taken together have seen the expansion of this bank's business from 81½ millions to 143 millions, and it seems scarcely open to doubt that by the end of the fourth year the business will have more than doubled. While a marked growth of banking assets has been a feature of the economic developments of the war, not alone in Canada, but all over the world, the Union Bank has succeeded in capturing far more than its proportionate share of the increase.

The bank's liabilities to the public are about 135 millions, and practically all classes of them show a steady increase. The most notable feature of this side of the balance-sheet, however, is the volume of the note circulation, which has reached a figure in excess of two-and-a-half times the paid-up capital. The "excess issue," over and above the capital, is fully covered by the deposit of gold and Dominion notes in the central gold reserve. This note circulation, which is a good index of the confidence enjoyed by the bank and the profitable nature of its connections, is doubtless due in the main to the heavy demand for currency in the Canadian West, where the Union Bank is particularly strong.

Profits are considerably improved from preceding years. Throughout the war the Union Bank has been able to maintain its dividend and bonus (totalling 9 per cent.) and to make all necessary provision for depreciation out of its current earnings, but this year, for the first time since the war, it has also a further surplus applicable to the writing down of bank premises account. The earnings were $763,463.92, of which $225,000.00 was required for taxes, donations, pension fund and contingent account. After payment of the dividend and bonus and writing down bank premises by $75,000.00, the remainder was left in the profit balance.

The balance sheet is strong in liquid assets, which total 77 millions, or about 57 per cent., of public liabilities. Much of these liquid assets is in a form calculated to be of service to the financing of the Dominion and Empire. They include 19½ millions of Dominion notes, $9,361,000 of Dominion and Provincial securities, and $16,244,000 of other public and municipal securities.

ELECTRIC SMELTING IN CANADA.

Sir Clifford Sifton Gives Figures of Interest at the Annual Meeting of the Conservation Commission.

Shortly after Dr. Haanel, the present Director of Mines, became connected with the public service at Ottawa, he was authorized to make an investigation into the question of electric smelting (says the *Canadian Engineer*). The investigation was conducted in a most thorough and scientific manner, and its results were published in a report which has become a standard work in all technical libraries which aim to keep on their shelves up-to-date works upon modern industrial processes. At the time when this investigation was held, the general opinion prevailed that, while the investigation was interesting, the time was distant when electric smelting would be carried into practical operation in Canada. It is, therefore, worthy of special mention that the fruition of the efforts which were made in connection with that investigation has arrived, and that electric smelting is now in full operation in Canada. Discussing this matter in an address at the recent annual meeting at the Commission of Conservation, Sir Clifford Sifton said there are at the present time, 32 Heroult electric furnaces in Canada and 22 of other types—in all 54 furnaces using the electric process. These furnaces have a capacity of 173,000 tons of iron and steel, 50,000 tons of ferro-silicon, and 8,000 tons of other ferro-alloys per annum. The British Forgings plant at Toronto has 10 electric furnaces of the Heroult type and a capacity of about 72,000 tons per year.

An interesting development has also taken place with respect to steel for shell making, which has an important bearing on conservation.

"At the beginning of the war," said Sir Clifford, "all shells manufactured in England were made from acid steel. Practically all steel made in Canada was basic steel. The Canadian steel manufacturers had never made shells. It was not absolutely certain that they could meet the requirements of the War Office, and changing from the manufacture of acid to basic presented many serious difficulties.

"Colonel Cantley, with whom the first shrapnel shell order was placed, made a basic steel shrapnel shell that met the War Office requirements and thus demonstrated its practicability. In December, 1914, Colonel Carnegie, ordnance adviser to the Imperial Munitions Board, took to the War Office the first machined shell ever made in Canada.

"Later, he was able to convince the War Office that high explosive shells made of basic steel would also meet their requirements. These munition orders have tremendously stimulated the metal and many other industries, notably the recovery of by-products from the coke oven plants. Incidentally also we have derived great benefit from the standardizing of methods and processes and the high degree of skill required to produce a product that is gauged to within one three-thousandth part of an inch and check-gauged to one ten-thousandth part of an inch. Over 250,000 workers have become skilled in such processes and in the use of such tools and gauges."

UNION BANK OF CANADA

General Statement of Liabilities and Assets

AS ON 30th NOVEMBER, 1917

LIABILITIES

Capital Stock		$5,000,000 00
Rest Account	$3,400,000 00	
Balance of Profit and Loss Account carried forward	106,624 34	
	$3,506,624 34	
Unclaimed Dividends	5,492 68	
Dividend No. 123, payable 1st December, 1917	100,000 00	
Bonus of 1 per cent., payable 1st December, 1917	50,000 00	
		3,662,117 02
		$8,662,117 02
Notes of the Bank in circulation	$12,779,662 00	
Deposits not bearing interest	44,368,804 40	
Deposits bearing interest	73,508,157 75	
Balances due to other Banks in Canada	372,938 57	
Balances due to Banks and Banking Correspondents elsewhere than in Canada	1,132,882 08	
		132,162,444 80
Acceptances under Letters of Credit		2,586,609 63
Liabilities not included in the foregoing		755 75
		$143,411,927 20

ASSETS

Gold and Silver Coin	$954,667 68	
Dominion Government Notes	19,514,069 00	
		$20,468,736 68
Deposit with the Minister of Finance for the purposes of the Circulation Fund		260,000 00
Deposit in the Central Gold Reserves		8,200,000 00
Notes of other Banks		770,549 00
Cheques on other Banks		3,912,030 75
Balances due by other Banks in Canada		82,984 17
Balances due by Banks and Banking Correspondents elsewhere than in Canada		5,193,687 14
Dominion and Provincial Government Securities not exceeding market value		9,361,729 52
Canadian Municipal Securities, and British, Foreign and Colonial Public Securities other than Canadian		16,244,470 99
Railway and other Bonds, Debentures and Stocks not exceeding market value		2,933,212 60
Call and Short (not exceeding 30 days) Loans in Canada, on Bonds, Debentures and Stocks		6,634,990 26
Call and Short (not exceeding 30 days) Loans elsewhere than in Canada		2,938,000 00
		$77,000,391 11
Other Current Loans and Discounts in Canada (less rebate of interest)		58,791,493 28
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)		3,154,431 66
Liabilities of customers under Letters of Credit, as per contra		2,586,609 63
Real Estate other than Bank Premises		370,603 77
Mortgages on Real Estate sold by the Bank		99,974 93
Overdue Debts, estimated loss provided for		250,204 91
Bank Premises, at not more than cost, less amounts written off		1,106,299 25
Other Assets not included in the foregoing		51,918 66
		$143,411,927 20

JOHN GALT.
President.

H. B. SHAW.
General Manager.

Report of the Auditors to the Shareholders of the Union Bank of Canada

In accordance with the provisions of sub-sections 19 and 20 of Section 56 of the Bank Act, we report to the Shareholders as follows:

We have audited the above Balance Sheet with the books and vouchers at Head Office and with the certified returns from the branches.

We have obtained all the information and explanations that we have required, and are of the opinion that the transactions of the Bank which have come under our notice have been within the powers of the Bank.

In addition to our verification at the 30th November, we have, during the year, checked the cash and verified the securities representing the investments of the Bank at its chief office and principal branches and found them to be in agreement with the entries in the books of the Bank relating thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Bank, according to the best of our information and the explanations given to us, and as shown by the books of the Bank.

T. HARRY WEBB, E. S. READ, C. R. HEGAN,
Auditors,
of the firm of
WEBB, READ, HEGAN, CALLINGHAM & CO.,
Chartered Accountants.

Winnipeg, 18th December, 1917.

THE CANADIAN BANK OF COMMERCE

Statement of the result of the business of the Bank for the year ending 30th November, 1917

Balance at credit of Profit and Loss Account brought forward from last year		$802,319 09
Net Profits for the year ending 30th November, after providing for all bad and doubtful debts		2,637,555 43
		$3,439,874 52
This has been appropriated as follows:		
Dividends Nos. 120, 121, 122 and 123 at ten per cent. per annum		$1,500,000 00
Bonus of one per cent. payable 1st June		150,000 00
Bonus of one per cent. payable 1st December		150,000 00
War tax on bank-note circulation to 30th November		150,000 00
Transferred to Pension Fund		85,000 00
Subscriptions:		
Canadian Patriotic Fund	$50,000 00	
British Red Cross Fund	7,500 00	
British Sailors' Relief Fund (Canada)	5,000 00	
Sundry subscriptions	10,300 00	
		72,800 00
Balance carried forward		1,332,074 52
		$3,439,874 52

GENERAL STATEMENT—30th November, 1917

LIABILITIES

To the Public—		
Notes of the Bank in circulation		$23,995,244 68
Deposits not bearing interest	$86,458,403 02	
Deposits bearing interest, including interest accrued to date	189,967,251 39	
		276,425,654 41
Balances due to other Banks in Canada		580,958 01
Balances due to Banks and Banking Correspondents elsewhere than in Canada		7,295,110 40
Bills Payable		120,857 29
Acceptances under Letters of Credit		5,597,665 13
		$314,015,489 92
To the Shareholders—		
Dividends Unpaid		2,668 20
Dividend No. 123 and bonus, payable 1st December		525,000 00
Capital Paid up	$15,000,000 00	
Rest Account	13,500,000 00	
Balance of Profits as per Profit and Loss Account	1,332,074 52	
		29,832,074 52
		$344,375,232 64

ASSETS

Gold and Silver Coin Current	$22,697,336 96	
Dominion Notes	21,954,910 25	
Deposit in the Central Gold Reserve	10,000,000 00	
		$54,652,247 21
Notes of other Banks	$2,004,762 00	
Cheques on other Banks	11,930,875 21	
Balances due by Banks and Banking Correspondents elsewhere than in Canada	8,496,103 99	
		22,431,741 20
Dominion and Provincial Government Securities, not exceeding market value		27,596,420 22
British, Foreign and Colonial Public Securities and Canadian Municipal Securities		22,095,133 29
Railway and other Bonds, Debentures and Stocks, not exceeding market value		6,192,461 60
Call and Short Loans (not exceeding 30 days) in Canada on Bonds, Debentures and Stocks		13,460,862 62
Call and Short Loans (not exceeding 30 days) elsewhere than in Canada		20,076,903 18
Deposit with the Minister of Finance for the purposes of the Circulation Fund		831,173 35
		$167,336,942 67
Other Current Loans and Discounts in Canada (less rebate of interest)		149,822,028 44
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)		14,846,130 56
Liabilities of Customers under Letters of Credit, as per contra		5,597,665 13
Overdue Debts (estimated loss provided for)		237,796 39
Real Estate other than Bank Premises (including the unsold balance of former premises of the Eastern Townships Bank)	$1,236,999 52	
Less mortgage assumed	100,000 00	
		1,136,999 52
Mortgages on Real Estate sold by the Bank		196,005 81
Bank Premises at cost, less amounts written off	$5,390,075 44	
Less mortgage assumed on property purchased	300,000 00	
		5,090,075 44
Other Assets not included in the foregoing		111,588 68
		$344,375,232 64

B. E. WALKER, President.

JOHN AIRD, General Manager.

Report of the Auditors to the Shareholders of the Canadian Bank of Commerce

In accordance with the provisions of sub-sections 19 and 20 of Section 56 of the Bank Act, 1913, we report as follows:

We have audited the above Balance Sheet and compared it with the books and vouchers at Head Office and with the certified returns from the branches. We have obtained all the information and explanations that we have required and are of the opinion that the transactions of the Bank which have come under our notice have been within the powers of the Bank.

We have checked the cash and verified the securities representing the investments of the Bank at its chief office and principal branches at a date other than, and in addition to, the verification at 30th November, 1917, and found that they were in agreement with the entries in the books of the Bank relating thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Bank according to the best of our information and the explanations given to us, and as shown by the books of the Bank.

T. HARRY WEBB, C.A., of Webb, Read, Hegan, Callingham & Co.
JAMES MARWICK, C.A., of Marwick, Mitchell, Peat & Co.
} Auditors.

Judge Men of Great Wealth By The Use They Put It To

Rational consideration of relations between producer and consumer urged by Sir Edmund Walker, President of the Canadian Bank of Commerce.

WE MUST ALL PREPARE TO FACE NEW CONDITIONS AFTER THE WAR

Sane, earnest remarks in regard to the distribution of wealth were made by Sir Edmund Walker, President of the Canadian Bank of Commerce, in the course of his address to the shareholders at the annual meeting.

Sir Edmund said:

We are living in a time of social unrest affecting greater areas of disturbance than the world has ever known. We are experiencing this unrest at a time of which it may be said, that those who live in our part of the world were never so easily able to obtain employment suited to their varied capacities, never so highly paid, so far as those are concerned who aid in the production of goods for sale, never so prosperous, using the word in a material sense. The price of everything, however, was almost never so high, and the purchasing power of the dollar has declined so much and so rapidly that people with a more or less fixed income suffer keenly, while those who earn more money than they could have conceived possible a few years ago, are disappointed and apparently surprised to find that everything else has advanced in price in proportion to their high wages. Out of this turmoil has come a bitterness towards all who, by any stretch of fancy, can be held responsible for existing conditions, a bitterness often without any real basis, and which is accompanied by explosions of wrath directed at whatever happens to be the nearest object of criticism, but, if continued, and kept at fever heat as it has been of late, promises ill for our country after the war. I am aware that I shall be accused of defending Capital and what are called the Big Interests, but there must be many readers of the annual addresses made by the officers of this bank who will believe that we try as faithfully as we are able to portray conditions as they exist.

Result of War.

Nothing in the end is to be gained by blaming the premier or the food controller, the provision dealer or the farmer, for high prices which are not merely a result of the war, but a result of war requirements so peremptory that the question of cost almost disappears. The conditions arising out of the war are at the bottom of most of our troubles, and what is necessary is not only fair dealing on the part of those who supply the wants of the people, but patience, and some remnant of belief in our fellow-men, on the part of those who feel the pinch and who, perhaps naturally, would like to punish somebody. If dealers have combined to put up prices, let them be punished, but apparently we are complaining because dealers, in buying from producers, did not combine to lower prices or to keep them down. The needs of the war are, however, so great that no combination can control prices either in one way or the other.

The Ruling Motive.

At the present moment the world provides wealth, and also material comfort, on a scale so vast, when compared with conditions a century ago, that surely no one will deny that the energy and the laws which have made this possible have been as a whole of enormous benefit to humanity. Yet this improvement in conditions is created by an appeal to the self-interest which exists in us all. To produce the best that we are able and to sell it for the highest price we can get, is what we are trying to do, whether our product be a day's work, a bushel of wheat, a plough, an intellectual or an administrative service of some kind to society, or a creation in the fine arts. Those who can honestly say that they are not so moved are either the idle rich, who are always a problem, or are too exceptional to affect the world as a whole. What is surely necessary is not to restrict the production of labor or merchandise at a profit, because clearly that is the impetus to industry, but to see that this industry and ability are guided into channels which are beneficial to the community and not hurtful.

Distribution of Wealth.

That the free exercise of industry and ability in accordance with the laws of the country and with the best existing standards of character, will enable one man to become very rich and another to earn only enough to support his family, is a fact for which nature is mainly responsible, and for which the ingenuity of man has not thus far found a remedy. If society by its laws should choose to limit the amount of wealth which any one may accumulate, let us wait until it has done so before passing judgment, and when we undertake to express our opinion of the character of those who possess great wealth, let us judge them by the use they are making of it, by the extent to which they regard it as a trust which came to them only because they were in some things abler than their fellows, and as a means through which they may leave the world the better because of their

existence. Many rich men do not come up to this standard, and by inheritance taxes we are gradually adjusting matters, but in North America there are so many instances of good service rendered to the state by wealthy citizens that one wonders if we should not be greatly the losers by any new condition which would hamper individuality and, in so doing, perhaps destroy the main factors which separate our twentieth century comfort from the miseries of the middle ages. In contending for a more rational consideration of the relations between the consumer and the producer, we have no intention of claiming that conditions are satisfactory, nor are we expressing an opinion regarding the relations of employers and employed, and certainly we hold no brief for either side. A great bank is vitally concerned with what will conduce to the true interest of the country, and that means the greatest amount of well-being on the part of its citizens.

Conditions After the War.

We have to face new and probably very difficult conditions after the war. If we are filled with animosity and distrust in our attempts to adjust our differences, the result will be a sorry one; if, on the other hand, with the experience we shall gain in many ways by the war, we co-ordinate the forces of industry we possess so as to present a united and efficient front, we may hope to enjoy in the fullest degree the peace and liberty for which our boys are fighting, together with greater prosperity than we have ever known. To accomplish this there are at least three elements which must be present. In our leaders of industry we must have enterprise and skill, and we must have plant and capital on a scale adequate to compete with other nations. Only the profits made and the experience gained during the war can render this possible. We must have technical knowledge of how to solve every difficulty, physical, chemical, or whatever it may be, that confronts the manufacturer, and some steps are being taken towards that end. More, however, than anything else, we must have such relations between the employer and the employed as will cause the employed to do heartily each day a full measure of his best work. The last is the great difficulty to be overcome, and the element about which there is unfortunately the most doubt. This is said with no intention whatever of apportioning blame. One would suppose that there must be faults on both sides. The fact remains that if we are to compete successfully with other nations we must recover the older condition when men were proud of the shop they worked in and of its product. It may only be a material question, but it may be a psychological one. Have employers and employed struggled with each other until the only natural feeling is antipathy, or can each be made to feel that he is so necessary to the other that not to work together at their best is folly, apart from the economic crime involved?

Personal Thrift.

We have been told that we should save money, not for our own benefit so much as because we should not spend on unnecessary things the money needed to carry on the war. It is even more necessary that we should eat less, again not so much because we need to save for ourselves but because if we do not eat less others across the sea must go hungry. If we have men, money and food, we shall win. If we fail in any of these we may lose. Individual tests, particularly in hotels and restaurants, show that very large savings can be made wherever the effort is directed to that end, but the difficulty is to make advice, or even the regulations of the Food Controller, effective in a country which produces food largely in excess of its own requirements and where economy in the use of food is thought to be evidence of a mean and sordid disposition. It is not, however, enough that we should eat less, but that we should as far as possible replace some articles of food, especially white bread and bacon, with others. There is a satisfactory increase in the use of fish, but only a small fraction of our people are responding in any degree to the call to economize. England has reduced the supply of sugar per capita per annum from 93 pounds to 26. Our normal supply is 90 pounds, and we are not reducing it yet. Working in harmony with the United States, an order in council has been passed prohibiting the export, except to places within the empire, of food and relative commodities, unless a license has been obtained.

Food Conservation.

The Food Controller is bringing under license the milling and packing industries, and is controlling the refining and distribution of sugar. The license system will also be applied to fish, fruit, vegetables, groceries, package cereals, milk, etc. In our London Manager's Review of Business Conditions, the following deeply significant words will be found:—

> "Too much importance cannot be attached to the steps that may be taken in the United States and Canada towards conserving foodstuffs, with a view to increasing the amount available for export to the Allies. The shortage of food, with which all the belligerents are confronted, and the difficulty of increasing production, owing to the lack of available man power, may hasten, or even prove the dominating factor, in bringing about a cessation of hostilities."

He means, of course, that such a shortage may prevent us from continuing the war until we can end it on our own terms. Do you wonder, therefore, that we return so often to this subject? Difficult as the problem may be, we must produce more, and we must eat less, otherwise some of those who are dearest to us across the sea must starve and we may lose our chance of dictating a peace, the nature of which shall be a guarantee that our children shall not have to fight again for those liberties which are now in jeopardy.

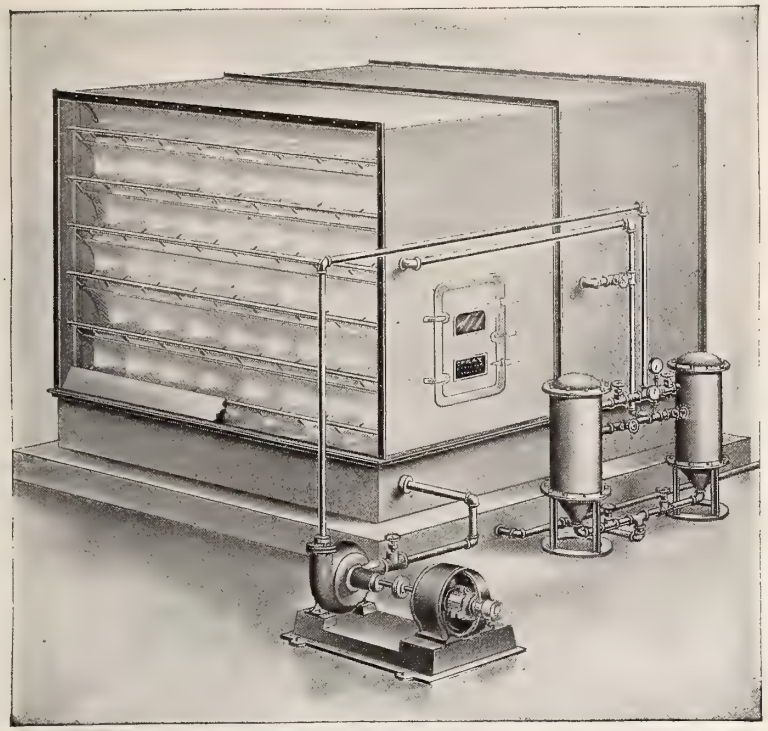
IMPORTANCE OF NITROGEN.

Chemical Plants Must have Large Amounts for Successful Continuation of the War.

Nitrogen in the form of gas constitutes 80 per cent. of the air and is free. The same nitrogen combined with other substances is the muscle-building part of foods; in other combinations it forms an essential part of the gunpowder used by our soldiers. In these combined forms it is expensive, and —more pertinent at this time—most of it is imported into this country in ships. The need of ships for all classes of shipping is limiting the supply of nitrates, and the most careful husbanding of the available supply should be practised.

In agriculture, the mineral nitrate fertilizers can be largely replaced by natural manures; by packing house fertilizers; and by the supply obtained from the air through the growing of leguminous crops, many of which produce highly nitrogenous and wholesome foods for both man and beast. When highly nitrogenous feeds, such as cottonseed-meal, must be used for fertilizers, they should first be fed to dairy cattle, as the amount digested out of the feed is small and the remainder is still available for crops in the form of manure.

Chemical plants must have large amounts of nitrogen for the successful continuation of the war; and other operators whose needs permit substitution should aid by not using them unduly.



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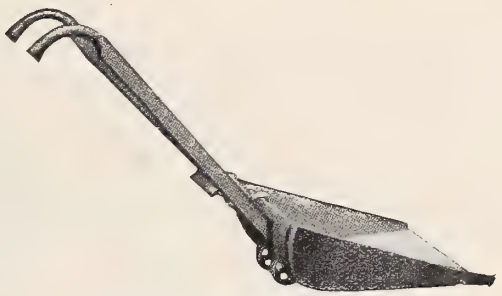
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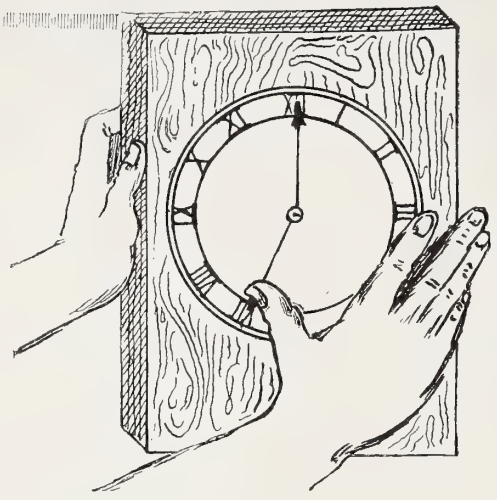
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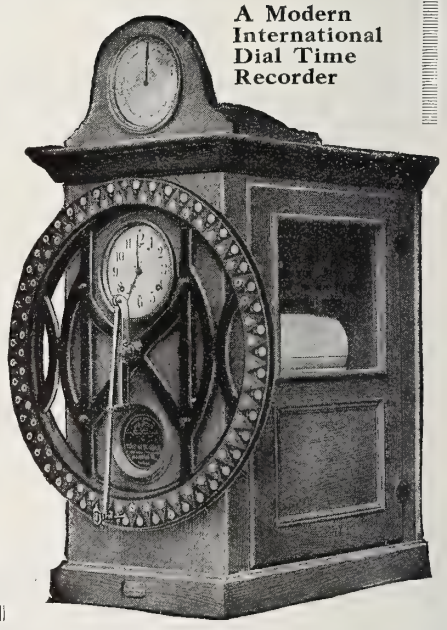
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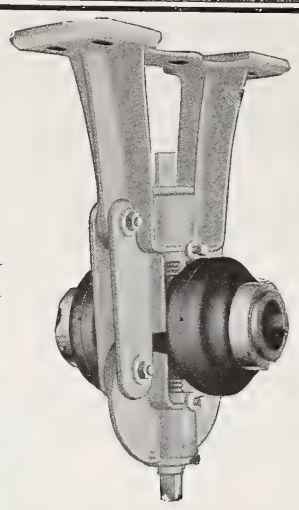
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Nickel Refinery at Port Colborne

Some Features of the New Plant of the International Nickel Company which is Now in Course of Construction

(From the Contract Record)

The site of the new refinery of the International Nickel Company, under construction at Port Colborne, Ont., consists of approximately three hundred and fifty acres, with a frontage immediately adjoining the Lake Erie frontage of the Canadian Furnace Company. The location is somewhat to the eastward of the entrance to the Welland Canal. The cost of the plant is estimated to exceed five million dollars, and there are over a thousand men still engaged on construction which will, it is hoped, be completed in the course of a few months.

Transportation facilities for the refinery will be provided by direct connection with the Grand Trunk Railway, a branch line of which passes the northern boundary of the refinery site. The position of the site with respect to the Welland Canal is such that recourse may also be had to transportation by water for those commodities that will be utilized in the refinery in large quantities, such as coal and coke, and where, owing to their points of origin, such water transportation may be deemed advisable.

There are in all thirty-one buildings of steel and brick construction. The following quantities represent some of the salient features in connection with construction:

Earth excavation	cu. yds.	96,210
Rock excavation	"	4,120
Peat removal	"	40,270
Filling and grading site	"	270,300
Concrete	"	25,880
Reinforcing	lbs.	1,312,900
Common brick	"	8,720,000
Fire brick	"	319,000
Steel work, structural	"	9,610,000
Cast iron	"	699,400
Roof area, asbestos	sq. ft.	332,800
Roof area, corrugated iron	"	34,100
Roof area, slate	"	17,100
Doors	"	24,940
Windows	"	83,660
Lumber	ft. B.M.	4,760,000
Electric conduits	ft.	23,860
Plastering	sq. ft.	232,500
Terra cotta	sq. ft.	41,820
Rails	lbs.	1,740,000

An interesting feature of the plant is the construction of two concrete chimneys, three hundred and fifty feet high, and twelve feet in diameter at the smallest part. These are believed to be the highest reinforced concrete chimneys in America.

Another feature of the plant is the provision of two clubhouses for employees, and the installation of a complete water-borne sewage scheme, the treatment being by the activated sludge process. This type of treatment has been the subject of experiment both on this continent and in England for the past three years, and has now been developed to such a degree that the International Nickel Company decided to use the process, it being highly recommended by the Provincial Board of Health of Ontario.

The site was decided upon in October of last year, and active construction on the ground commenced immediately, and has been continued without interruption. The basis of the layout of the refinery provides for buildings so placed that various stages of the process are segregated and the economical handling of the labor and materials is obtained, liberal allowance being given to allow for future extensions.

Special attention has been given to lighting and ventilation, and up-to-date change houses, fitted with shower-baths, and other facilities, are available for the employees.

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A Woman's Experiences in a Rifle Factory

Telling How the Women of Quebec Volunteered for Work in the Munitions Industry and Were Employed in the Manufacture of Rifles at the Famous Ross Rifle Factory

By Mary J. HUESTIS

(Reprinted from the "Scientific American")

SHORTLY after war was declared, the Daughters of the Empire of Quebec, Canada, a patriotic and educational organization, volunteered their services as munition workers.

The women of England were our inspiration. We read of their sacrifice to do men's work, thus releasing the men for war duty, while they kept the wheels of national industry in motion. We believed that what the women of England could do for their country, for the world's liberty, we, the women of Canada, could do. And so we volunteered for war service to the Ross Rifle Company, at Quebec, makers of the National Canadian Service Arm, and our offer to assist as machine operators was accepted by the president, Sir Charles Ross, with the understanding that we would receive the same rate of pay as the men.

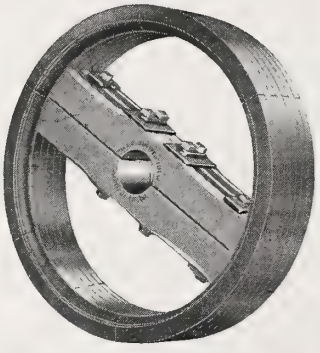
Some of us believed we were not fitted for factory work, but we did not want to discourage this great wave of patriotic enthusiasm that swept over our women who wanted to do their bit—hands-across-the-sea with their English sisters, in unity of purpose. Speaking of women not fitted for factory work, I counted myself the first mechanical failure. I remember lying awake all night before starting work as a machine operator, thinking up some scheme for hiding my failure before public criticism, and near daylight fell asleep repeating the word "slacker."

The morning we started for work a Quebec blizzard was raging, the thermometer being 22 below, and we had to cross the historic Plains of Abraham to get to the factory. I shall never forget my first lessons as a machine operator—war work that made you actually feel you were in sight of the firing line.

We started work in the machine barrel straightening department. The ten working hours a day were divided in two five-hour shifts. Operators working in the morning one week changed to the afternoon shift the next week. Barrel straightening by machine was a new departure in rifle manufacture. Generally barrel straightening is done entirely by the hammer and block method. Machine barrel straightening requires great precision, and although working with our hands, we were mentally registering so many pounds pressure to the inch every time a machine hammer struck the barrel to straighten it. In this capacity an operator lifted on an average 1.14 tons per hour.

When I was for the first time given charge of a small group of women, although appreciating my promotion, I did not, how-

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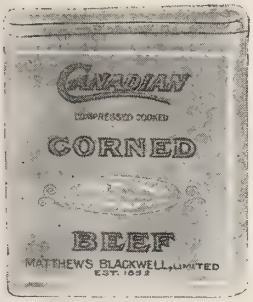












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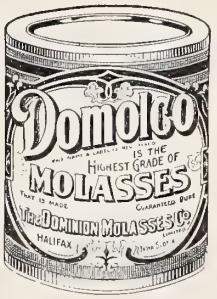
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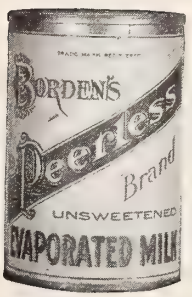
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ever, like the idea of standing around letting others do the work, but before the first shift was over in my new job, I realized it was not all standing around. Two big problems confronted me. I was there for war work, but I must learn something of the manufacturing end before I could see success ahead of us. Being at that time on the five-hours' shift, I devoted the other five hours of the day to the study of the manufacturing and executive end, and after several months' study I was promoted to supervisor of the machine barrel straightening department. In this capacity, I was responsible for the output and class of work in this department, and the conscientious work, fineness of touch, and precision of our women operators soon proved that they were fully able to meet the requirements.

Later on, the Women's Employment Bureau was under my direction, and my final promotion was Superintendent of Women. The very shortest possible time which a woman must remain in the machine operator class before she can be eligible for promotion to executive posts of any kind, is six months. The psychology of the six months period of training comes in disciplining women to accustom themselves to the routine and discipline of factory life, which, in turn, they have to impress upon their subordinates.

Our next supplementary work was in the bayonet department. The work in this department is not of one character, as in the machine barrel straightening department. It consists of milling, profiling, drilling, punch press, etc., and in this department our women also did expert work, setting up the machines after an incredibly short space of time.

As emergency required, we drafted women to supplement the work in other departments, where they learned to operate lathes, screw machines, cutters, grinders, etc. Women were also introduced into the inspection and assembly departments.

Machine barrel straightening was our pioneer department and from here you can trace in the factory records, expert operators in nearly every department. Three of our best barrel straighteners were instructed in rifling, and proved expert operators. *These are the first and only* women riflers on the continent of America. Rifling and machine barrel straightening (a new departure) were the only operations taught in schools, being of an exceptionally difficult nature. All other operations were taught in the shop. Machine barrel straightening was the only department with a five-hour shift. In all other departments we worked ten hours.

Welfare department. In order to study the best methods of welfare work, my assistant and I visited the National Cash Register plant, Dayton, Ohio, where they seem to have thought out the right way to do everything. Then we studied the Omar plant at Dayton, manufacturing fuses for the Russian Government. Here again was a model plant adaptable to war conditions. We also visited Peters' Cartridge factory, King's Mills, and Ford's at Detroit—each offering the very best suggestions. I drafted from each that which was best suited to our conditions. We had our trained nurse, our rest rooms, restaurant, doctor, etc. Service badges for munitions workers were a great incentive to make them come regularly to work, as badges were given for good work, good conduct and regularity, and a worker had to be at least three months in the factory to get one.

Our welfare department spelled promotion for our operators. No person can be fitted for executive control, and hold respect of his subordinates, unless he is able to give practical demonstrations. It follows, that all women entering a factory should begin as machine operators, and go through routine work in order to be in touch with employer and employee—team play being the only road to success in the plant. All distinctions as to class, race, language were levelled and not recognized.

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PRODUCTS

We manufacture a complete line of Ladies' Silk Coats; Worsted Sweater Coats for men, women and children; Children's Suits; Ladies' and Children's Skirts; Cap and Scarf Sets; Toques; Aviations; Motor Scarves, etc.



L 859

HOSIERY

Made in silk, mercerized, cotton and cashmere, for men, women and children. Also Hand-Knitting Yarns.

FOUR LARGE PLANTS

Head Office and Factory:
DUNNVILLE, ONT.
Factories also at
ST. THOMAS, ONT.
ST. CATHARINES, ONT.
and
BUFFALO, N.Y., U.S.A.



L 705

The Monarch Knitting Co., Limited

Condensed Advertising

FACTORY FOR SALE.

Brick Building, in live city within fifty miles of Toronto. About 40,000 sq. feet floor space; well lighted on all sides; completely equipped power and heating plant. Building facing main line railway presents excellent advertising possibilities. Suitable for wood-working or light manufacturing. Write for particulars, Box 622 INDUSTRIAL CANADA.

FACTORY FOR SALE.

Good frame building, in live town, having electric light and power, sewerage and water protection, 30 miles west of Toronto, situated on two continental lines and junction; shipping, all points; siding to building; 13,000 sq. ft. floor space and room to grow; suitable for storage, medium or light manufacturing; excellent facilities for railroad advertising. Write for further particulars, Box 147, INDUSTRIAL CANADA.

FACTORY AND PLANT FOR SALE.

Frame building on siding of main line Grand Trunk, in good, live town, between Toronto and Guelph; about 9,000 sq. ft. floor space; cement boiler house, 50 h.-p. boiler, 25 h.-p. engine, Sheldon heater, 5,000 ft. coils, pulleys, shafting and belting. Further particulars, Box 153, INDUSTRIAL CANADA.

COTTON & WOOL WASTE

PACKED AT OUR

DOMINION WASTE FACTORY
TORONTO

THE GUARANTEE WITH OUR

Washed Cotton Wipers

All wipers have been hand selected, hard and starchy parts and buttons, etc., removed, sleeves and other closed parts opened and subjected to a thorough washing, rendering absolutely sanitary.

Write us for prices on our brands

SELECT WHITE MIXED COLORED
DARK COLORED

SCYTHES & COMPANY, LIMITED
Manufacturers and Jobbers, Toronto, Montreal

WASHED COTTON WIPERS

Jap Ships for Pacific

The Nippon Yusen Kaisha Adds Three Fine Steamers to Its Pacific Service

Further extending its service across the North Pacific by giving its six biggest, newest and best-equipped liners to this route, and providing Victoria and the Northwest with direct trade connections with the Orient never before approached, the Nippon Yusen Kaisha, Japan's premier shipping firm, has added to its ocean fleet the steamships Atsuta Maru, Kashima Maru and the Kamo Maru, states the *Victoria Colonist*.

The aggregate gross tonnage represented by this latest addition to the service is 37,000, making a total of 58,000. Every one of the new liners is nearly twice as large as any of those on the run a year ago, and the total tonnage is considerably greater, although this time last year the N.Y.K. was operating seven passenger and freight ships across the Pacific—the Yokohama Maru, Sado Maru, Inaba Maru, Tamba Maru, Shidzuoka Maru, Kamakura Maru and Awa Maru.

The new liners will inaugurate a direct service, not only with Japanese ports, but also with Shanghai, Hong-kong and Manila.

The advent of the Fushimi Maru and the Katori Maru, the first of which reached here November 4 on her maiden voyage, and was in Victoria last week on her second, was heralded as marking a new epoch in this port's status with respect to ocean trade. Now the combined tonnage of the Katori and the Fushimi has been practically doubled by the coming of the other vessels.

The Kashima Maru is a sister ship to the Katori Maru, being a 10,000-tonner. In some respects the Katori is regarded as being better equipped than the Fushimi, and the Kashima is therefore a notable acquisition for the Victoria trade. She will be in Victoria about February 1, being the first of the new liners to make the journey across.

Both the Atsuta Maru and the Kamo Maru are 8,000-ton vessels of modern design, and, like the others, are fresh from European service maintained by the Nippon Yusen Kaisha, but recently abandoned to some extent on account of the dangers of submarines in the Mediterranean and the southwest coast of Europe. It has been the policy of the N.Y.K. to take its best liners from the route and to transplant them to the Pacific, as the company, besides having regard for the safety of its boats, also recognize the possibilities of building up trade between America and the Far East.

A notable feature of the new service to be inaugurated by the latest additions to the fleet is that they will go as far as Manila, Shanghai and Hongkong. At present the N.Y.K. vessels only touch at Japanese ports—Yokohama, Kobe, and Nagasaki.

Two of the six liners will only go as far as Kobe, but five will make the China and Phillipine calls, thus following practically the same schedule as the Canadian Pacific, although with slower vessels. The new service will give Canada and the United States direct connections with China and the Phillipines, never before enjoyed, as in the past all Japanese steamers plying to this and other northwest ports have sailed from Japan, and freight and passengers to or for other points had to transfer to other vessels, unless they took passage on the C.P.O.S. vessels.

In addition to the six passenger and freight liners, the N.Y.K will continue to operate several vessels for the transportation of freight exclusively. Among these is the Tokiwa Maru, which will soon end its third voyage to this port, bringing a freight of nearly 10,000 tons.



RELIABLE
TRADE MARK

CANADIAN PRODUCTS

IN announcing RELIABLE dry batteries and flashlights we present a complete line of CANADIAN PRODUCTS—financed by Canadian capital, made by Canadian workmen. We have taken the name RELIABLE as it so clearly expresses the policies which govern the manufacture and sale of our goods.

Our products are sold only through the retail trade. No RELIABLE brand goods are sold through mail order houses or direct to the consumer from our factory.

RELIABLE batteries are made in standard sizes for ***ignition, telephone, lighting*** and ***regular*** work—also complete line of batteries for all standard flashlight types. All RELIABLE batteries are manufactured with the idea of producing batteries of long life and capable of long, intermittent service. This fundamental feature is not sacrificed in any case for the sake of high initial amperage or brilliance.

RELIABLE Enamelled Tubular Searchlights can be obtained from no other Canadian manufacturer. These non-short-circuiting metal searchlights are available in four colours: red, brown, blue and green, and offer distinct advantages to flashlight users, and are a unique selling feature for dealers. The RELIABLE line includes, also, all standard sizes and types of metal and fibre flashlights.



THE

DOMINION BATTERY CO., Limited

MR. W. M. TURNLEY, Manager

736 Dundas Street East Toronto

Conditions in Canada's Principal Industries

Developments of the Year are Outlined and Information Presented as to the Comparative Output and the Various Conditions Surrounding the Industries of the Dominion

FROM the exhaustive review of business conditions throughout Canada, compiled at the end of each year by the Canadian Bank of Commerce, the following paragraphs dealing more particularly with the manufacturing industry have been extracted. As they present the views of bank managers in close touch with the industrial life of the country, the conclusions drawn are of undoubted value. Commencing with the Maritime Provinces—

Shipbuilding.

Wood shipbuilding in the Maritime Provinces is yet far below the high-water mark of the industry in the good old days of thirty-five or forty years ago, when it was said the traveller going round the coast was never far from a shipyard. The recovery from the dullness of recent years, however, is remarkable. In 1916 some sixty vessels of all sizes were built, aggregating 12,000 tons and costing $1,200,000. This year upwards of seventy vessels have been fitted out for sea, registering about 20,000 tons, and costing $2,500,000; while it is estimated that 13,000 tons are at present under construction in the yards. This is a gratifying proof of the historic aptitude of the people of the Maritime Provinces for this industry. The cost of building has advanced 30 per cent. since last year, but the demand for vessels has been so pressing that the builders have been able to dispose of them at profits of from 25 per cent. to 50 per cent., and in some cases even of 75 per cent. There is as yet no evidence that the boom is receding, but next year caution will be required.

The situation is very different with regard to steel shipbuilding. The vessel under construction in 1917 in the yards of the Nova Scotia Steel & Coal Company, Limited, New Glasgow, was successfully completed and is now in commission. A second and a larger one is well under way, and a third has been laid down. The industry has received much attention in other quarters. The Government of Nova Scotia, realizing the crisis in ocean shipping and its own responsibility as representing a maritime community, obtained from the Assembly legislative authority to assist to the extent of $2,000,000 any practicable scheme for the extension of the industry within the Province, and a Commission was appointed in May, which has been carrying on negotiations with important interests, both in the Old Country and in Canada, with the object of establishing the industry on a permanent basis. It was found that the world-wide demand for ships' plates made it impossible to establish a new shipyard in Nova Scotia, and that the time was not opportune for extending the operations of the local steel companies to the rolling of plates. However, negotiations are still pending, and it is earnestly hoped that the day is not far distant when these provinces will be contributing their quota of steel ships to the Canadian mercantile marine and to the transportation facilities of the Empire. In this connection popular opinion would favor a liberal policy of assistance on the part of the Dominion Government.

Steel Companies in Nova Scotia.

The large steel companies at Sydney and New Glasgow were obliged to make certain adjustments as a result of the cancellation of shell orders, but this was soon offset by the good demand for other iron and steel products. The production of both companies has been as large as in any previous year, and all indications point to an active and profitable business in 1918. Both companies are making important enlargements and improvements to their plant, and are prepared to take care of any business that offers, with the exception of ships' plates. In view of the scarcity of labor, these results reflect much credit on the management of the companies and on the employees.

The lumber cut in these provinces in 1916-1917 was estimated at 700,000,000 feet, or about 25 per cent. below the average of the past six or seven years. The cost of production was 40 per cent. greater than the average for the same period; nevertheless, the manufacturers who were able to make deliveries have secured a fair margin of profit. In 1913, the year before the war, spruce deals alongside a vessel in a Maritime Province port cost about $12 per thousand and were sold for about $16. This year the cost was $15 and the selling price $21. The manufacturing cost of boards and scantling is, as a rule, about 10 per cent. more than that of deals, and the selling price is generally about $2.50 per thousand feet less, except in the case of good pine boards. The latter are worth at the time of writing about $23 per thousand loaded on cars for export to the United States.

Transatlantic Shipments Cease.

It was impossible this year to ship deals to England on private account, excepting in small odd steamer lots, and, early in the season, by sailing vessels. The latter cannot now be chartered at all because of the submarine menace, and for several months transatlantic shipments of all kinds have practically ceased. As a result we estimate that 40 per cent. of the season's cut of spruce deals is still on hand, but of this amount at least one-half has been paid for, and is being held for account of the British and French Governments. When navigation on the St. Lawrence is closed, shipping space for these stocks may become available on liners from Atlantic ports.

The general situation led manufacturers to look to the American market, and more lumber found its way there from these provinces in 1917 than for many years. The demand, especially in late months, has been good, the larger part of our exports being required for military purposes. The immediate outlook in the American trade is very fair, but, at the same time, that market conducts its business more or less on a hand-to-mouth basis, and our lumbermen will be wise to manufacture only to fill definite contracts. The situation which at the present time confronts the trade is therefore one calling for unusual care. The English yards are bare of spruce deals and the trade requirements on that side are urgent, but everything depends on the action of the British Government. In this connection a leading authority in Liverpool writes as follows: "Importers are finding their trade rapidly diminishing, and government restrictions are a stranglehold which cannot be loosened. The prospects of an early improvement in these conditions are not hopeful." No tonnage was available for shipments of pit-props and so none were cut in 1917. There was no reduction in exports of pulp and pulpwood, which were all marketed in the United States.

JONES



UNDERFEED AUTOMATIC STOKER

Eliminates Smoke and Makes More Steam with Less Coal

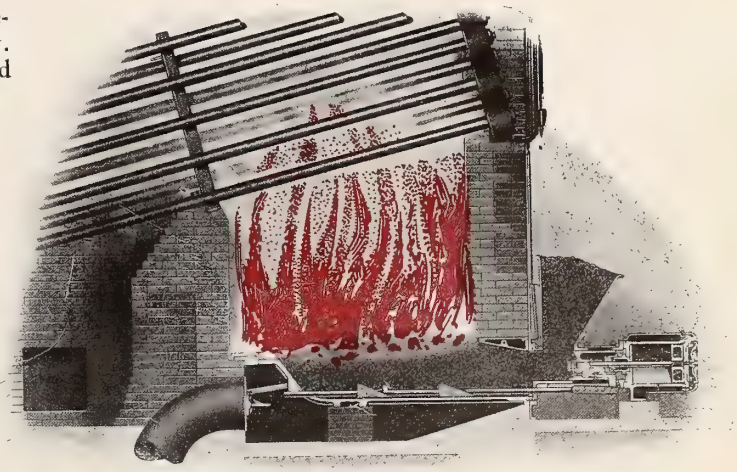
It is a well-established fact among steam users now that the mechanical method of firing is cheaper and more efficient by far than the old hand method of firing.

You get **more** steam from **less** coal—and furthermore all smoke nuisances are banished.

The Jones Stoker maintains a constant steam pressure because of the automatic control of air supply and coal supply. It increases boiler horse-power developed by its unlimited capacity to feed coal and simultaneously introduces extra air required in proper proportion for combustion. Immediately responds to fluctuating loads and sudden demands for steam. No soot! No smoke! Burns any grade of bituminous coal!

There are a lot of interesting things to tell about the Jones Stoker. Write us.

The "Jones" embodies the most practical features of mechanical stoking known to science. Underfeed stoking is the only device for burning coal, which utilizes as fuel all volatile ingredients. So there is no waste with the **Jones Underfeed Stoker** in action—No grates—no unburnt coal in the ashpits.



JONES UNDERFEED STOKER COMPANY, LIMITED

37-41 BRITAIN ST. TORONTO

Shipments were made altogether by rail and prices yielded a satisfactory profit.

Lumbering in Quebec.

The cut of lumber this year in the Province of Quebec was from 30 per cent. to 40 per cent. smaller than that of 1916. Unfavorable logging conditions last winter, together with the great scarcity of labor, contributed to the decrease. Another reason is that a number of firms which ordinarily manufacture both lumber and pulpwood have been converting all their spruce logs into pulpwood. The position of the lumber industry at the present time is unsatisfactory as far as the manufacturer is concerned, owing, principally, to labor conditions and to the excessively high cost of everything used by the lumberman. The effect will be to curtail logging operations again this winter and to reduce the output of lumber for 1918. The export trade to Great Britain has been very light, owing to the lack of tonnage. There has been a good demand for Canadian lumber in the United States, but shipments to that country have been hindered by the car shortage. The market in Canada for manufactured lumber has been quiet on account of the inactivity in building operations and the temporary falling off in the demand for munition boxes. The demand for lumber, however, has been better than in 1916 and prices have ranged from 20 per cent. to 30 per cent. higher.

There has been a great demand for pulpwood from the Canadian mills and also from the American market, and buyers are paying from $8 to $12 per cord for unbarked wood and from $14 to $20 for peeled wood, f.o.b. cars. Owing to the very high prices offered, a much larger quantity of wood than usual is being cut from private lands. Ground wood pulp sold in the early part of the year at $42 per ton, an increase of $22 over pre-war prices. Owing to the abnormal rainfall this year, pulp mills have been able to operate to the fullest extent, with the result that there are large stocks on hand and at present ground wood pulp can be purchased at $27.50 per ton f.o.b. shipping point.

The Pulp and Paper Industry.

The pulp and paper industry continues to be in a very prosperous condition, and the mills making newsprint paper have been running throughout the year to full capacity, the machines being operated twenty-four hours daily for six days of the week. The greatest efforts have been made to meet the ever-increasing demand for this class of paper from home and foreign markets, yet the demand still exceeds the output. Very great difficulty has been experienced in obtaining chemicals and other supplies, and the cost of all materials entering into the manufacture of paper has increased considerably and is still advancing. It remains to be seen how the manufacturers' profits will be affected by the Government's action a few months ago in fixing at $50 per ton the price of newsprint paper supplied to the Canadian trade. The result of the recent official investigation into the cost of producing this grade of paper shows the average cost of all of the mills in Canada to be $57.33 per ton, which means a loss to the manufacturer of $7.33 on each ton sold in Canada. It is apparent that were it not for the higher prices obtained for paper sold in the American and other markets, ranging from $60 to $65 per ton f.o.b. at the mills, the Canadian manufacturer would be compelled to operate at a loss or to close down. Orders for paper have shown a marked decrease in all lines except newsprint during the last six months, and dealers appear inclined to restrict their buying to immediate requirements.

The shipbuilding industry has been very active during the year at Montreal, Quebec, Levis, Three Rivers and other points in the province. It is not possible to obtain complete statistics for the current year, but the following information has been furnished regarding the operations carried on at the important naval construction works of Canadian Vickers Limited, Montreal: The company has built and delivered during 1917 twelve submarines for Allied Governments, eight steel trawlers complete with machinery and boilers, nine steel trawler hulls, twenty-six wooden drifter hulls, and machinery and boilers have been installed in sixteen drifters. There has also been built and launched at the company's works a 7,000-ton cargo boat, the largest ocean-going steamer ever built in Canada. Other shipyards in the Province have been actively engaged during the year, under contract with the Imperial Munitions Board, in the construction of wooden vessels with steam propulsion, and orders continue to be given for this class of vessel. In addition, a number of wooden trawlers have been built for the Canadian Government. The first self-propelled reinforced concrete ship ever constructed on this continent was successfully launched in November at the plant of the Montreal Dry Docks and Ship Repairing Company, Limited. The steamer, which was completed in about seven weeks, is 126 feet long and has a capacity of 300 tons.

Lumbering in Ontario.

For over two years after the outbreak of war the lumber trade of Ontario remained below normal, but considerable activity then developed with the increasing demand for military and manufacturing purposes, prices advanced and a steady improvement set in which has continued throughout the greater part of the past season. As predicted last year the scarcity of labor, high wages and the greatly increased cost of supplies tended to curtail the cut of logs, with the result that the output in the Georgian Bay district was much reduced. The first six months of the year were active ones, with a strong demand from the United States as well as from the home trade, principally for munition and other purposes, with the result that dealers in Western Ontario are carrying over lighter stocks than in the previous year.

In the Ottawa Valley similar conditions have been experienced, although it is estimated that the cut will amount to 400,000,000 feet, compared with 375,000,000 feet in 1916 and over 450,000,000 feet in each of the two preceding years. The increase is due in a measure, it is stated, to the fact that the high water last spring brought down many logs left over from the previous season. The usual contracts for deals for the British market had been entered into before the placing of the embargo on lumber shipments overseas and, with the exception of a few orders for the Admiralty and on Government account, practically the whole stock, although paid for, remains on this side. The most important part of the trade is carried on with the United States, where an unusually brisk demand arose, owing to the requirements incidental to mobilization, and to the freight blockade preventing free deliveries of southern pine. The demand for rough lumber has enabled many yards to clean up much old stock. The home demand was good, especially for shell box lumber, but this slackened off towards the end of the year. Building and railroad orders have been much below normal. The outlook, owing to high manufacturing costs, calls for the exercise of discrimination in the carrying of stocks, as there is the possibility that prices may fall as rapidly as they have advanced. The following figures of the lumber



EDDY

ESTABLISHED A.D. 1851.

Two well-known commodities dear to the heart of the critical fire insurance inspector are

Eddy's Fire Buckets

AND

Eddy's "Silent 5" Matches

because he knows that each in its place means a minimum of fire danger.

You are not inviting a prosperous 1918, unless your factories and warehouses are equipped with Eddy's Fire Buckets, and the folks at home instructed to buy only Eddy's Chemically Self-Extinguishing "Silent 500" Matches.

The E. B. EDDY COMPANY Ltd.

HULL CANADA



1851 1918

exports to the United States from the Ottawa Valley are an indication of the growing importance of that market:

Year 1914	$1,946,228
Year 1915	2,234,357
Year 1916	5,238,392

We understand that 1917 will show a further increase.

Steadily increasing prices during the past year for pulp and paper have been responsible for increased activity in these industries and the demand for our products has steadily increased, exports to the United States of pulpwood from the Ottawa Valley showing a marked increase. The possibilities of further development of the output of pulp and paper in that district, owing to its large potential supply of hydro-electrical energy, are worthy of attention.

Manufacturing in Ontario.

The manufacturing industries have prospered in a manner far exceeding all expectations, which is largely the result, either directly or indirectly, of the Government expenditure on supplies for the war. Manufacturers of munitions during the greater part of the year have been working to capacity, but latterly, owing to the cessation of orders for shells, fuses, etc., there has been some slackening in activity. All steel plants, rolling mills and wire mills have been fully occupied. The manufacture of agricultural implements has received special impetus from the heavy purchases of the farmers throughout the Western Provinces. Motor car manufacturers have been busy and some plants report the largest output on record. Considerable development has taken place in the production of woolen goods and it is conjectured that the Canadian mills will be able to hold a larger share of the domestic trade after the war. Orders for munitions and military supplies have latterly been received from the United States and it is anticipated that many mills will be fully engaged with these until midsummer next. All this increased activity has been accompanied by steadily increasing cost of materials and of labor, particularly of the former, the scarcity of which in many lines is increased by the prolongation of the war.

British Columbia's Industries.

In lumber the improvement reported last year has been more than maintained, and although the demand has now slackened considerably, the feeling is distinctly encouraging. The output of the coast mills was about normal as compared with the 50 per cent. cut of last year, and the selling price of common lumber has been about $5.25 over the price prevailing in 1916. The production for the year is estimated at 1,250,000,000 feet, an increase of 25 per cent. over 1916. The consumption has been almost exclusively either local or for export eastward. As only the very best quality of spruce can be utilized for the manufacture of aeroplanes, it is feared that the large quantity found unfit for this purpose will glut the market. Fortunately, stocks on hand are about the same now as in 1916, when they were the lowest for several years. The Queen Charlotte Islands, where there are large blocks of standing spruce, are coming into the field as producers, and several new mills are being erected. The market for standing timber is firm and prices are advancing, but sales have been few.

This should have been the heavy year of the quadrennial period of the salmon fishery on the Fraser River, but the run of sockeyes was distinctly disappointing. As compared with the pack of 972,000 cases of sockeyes in 1913, the corresponding year of the previous period, only 339,000 cases have been put up, the decrease being almost entirely in the Fraser River pack, which fell off by 571,000 cases, a result evidently due to the block in the river caused by railway operations in 1913. In spite of this, the entire pack of salmon in the Province has been the largest on record, 1,557,000 cases, or 203,000 cases more than in 1913, the deficiency in the catch of sockeyes, the most valuable fish, having been more than offset by the larger catch of the cheaper grades.

The output has been sold at record prices, $16 per case of half-pound tins having been obtained for sockeyes, with prices for the lower grades in proportion. On the other hand, while the canners have made money, their expenses have been increased by the extra cost of labor and materials and by the high prices which they have been obliged to pay for the fish—75 cents apiece for sockeyes and, towards the end of the season, 70 cents for chums, figures hitherto unknown. The buyers from the United Kingdom are permitted to import into Great Britain only an amount equal to 50 per cent. of last year's pack; they have bought more than this and are storing the surplus for shipment after the new licenses come into force. France and Italy have also bought largely, but there are no restrictions upon shipments to these countries.

Will Not Make Contracts.

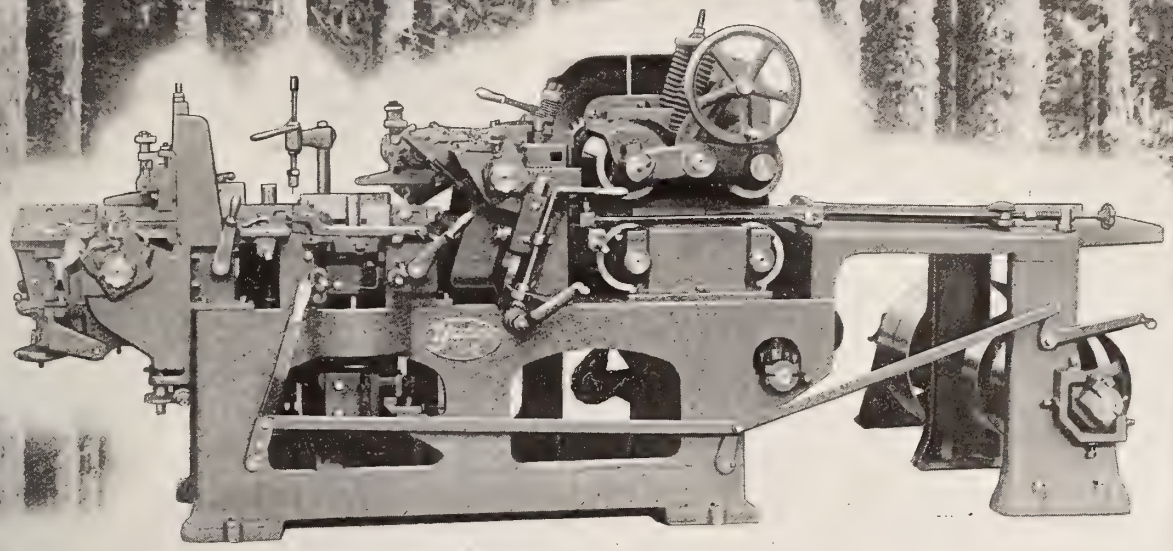
It is impossible to predict the course of the market for next year, and neither buyers nor sellers will make contracts, because there is so much uncertainty as to the possibility of securing tinplate and other necessary supplies, and there are so many possibilities of trouble in the labor situation. It is to be noted that the packers secured the appointment by the Dominion Government of a commission to investigate conditions in the northern part of the Province. Their report has not yet been presented, and in the meantime another commission is to take up without delay the investigation of the Fraser River, as a result of which it is hoped that the depletion of this fishing grounds will be prevented by suitable regulations and an agreement with the authorities in the United States.

The catch of fish of all kinds in the entire Province, mainly in the north, was 50,226,800 lbs. in 1917, as compared with 46,397,200 lbs. in 1916, halibut and salmon predominating. The catch of halibut was somewhat less than that of last year, but that of salmon showed an increase of about 3,700,000 lbs.; the market for other and cheaper grades of fish is steadily increasing, but the depletion of the halibut banks is becoming more evident year by year. Prices for this fish have been from 10 to 22 cents, as compared with 3 cents per lb. a few years ago. Of the fish products of the Dominion, amounting to $35,860,708 in 1916, British Columbia produced 40 per cent. and leads every other province. The whaling company, which operates through a subsidiary company in American waters, also secured this year a catch of 588 whales, as compared with 671 in 1916, and although the number is less the profit will be greater, because of the increase of 50 per cent. in the value of oil since 1916. Whale meat has been put upon the market for the first time.

Manufacturing Industries.

Thirty-two wooden and eight steel vessels are now under construction in the Province, but apart from shipbuilding there has been little increase in manufacturing. War orders for shells and shell boxes have ceased, and although it is true that while they lasted they created quite a heavy pay-roll there was little resulting profit to the manufacturers.

Wherever the Timber Trail Leads-



A Yates No. 108 Open-Side Moulder –

will be found, because this machine combines the good features of both the Inside and Outside Moulder, with none of the faults of either. It is an indispensable unit in more than 1500 mill equipments, North, East, South and West. It is the acme of durability and efficiency. It is synonymous with low upkeep and high profits.

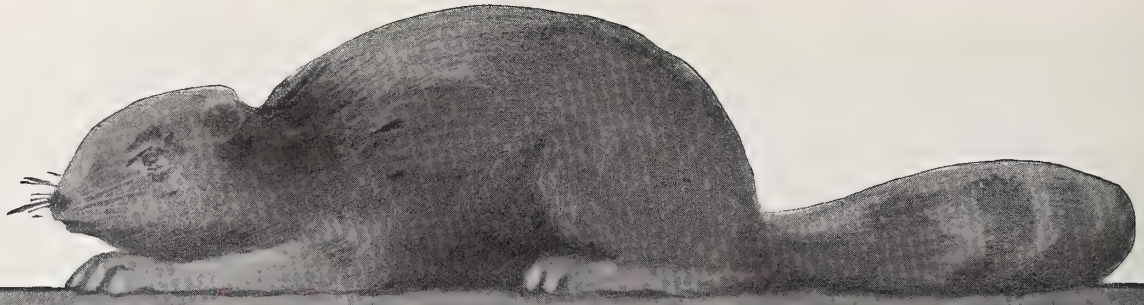
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MADE IN CANADA

The following are Beaver Brand Products, all dependable and satisfactory :

Copper, Brass, Bronze, Canada Silver, and Gilding Metal in Sheets, Rolls, Plates and Rods. Naval Bronze, Yellow Metal and Muntz Metal in Sheets and Rods for Shipbuilding requirements. Specify Beaver Brass Rod for Drilling and Free Cutting. Extruded Shapes.

Guaranteed Ingot Metals — Yellow, Red and Composition Ingots.

We are Purchasers of Copper Bearing Material. Send an order and become acquainted with the merits of Beaver Brand Products.

BROWN'S COPPER AND BRASS ROLLING MILLS, LTD.

GENERAL OFFICES AND MILLS :

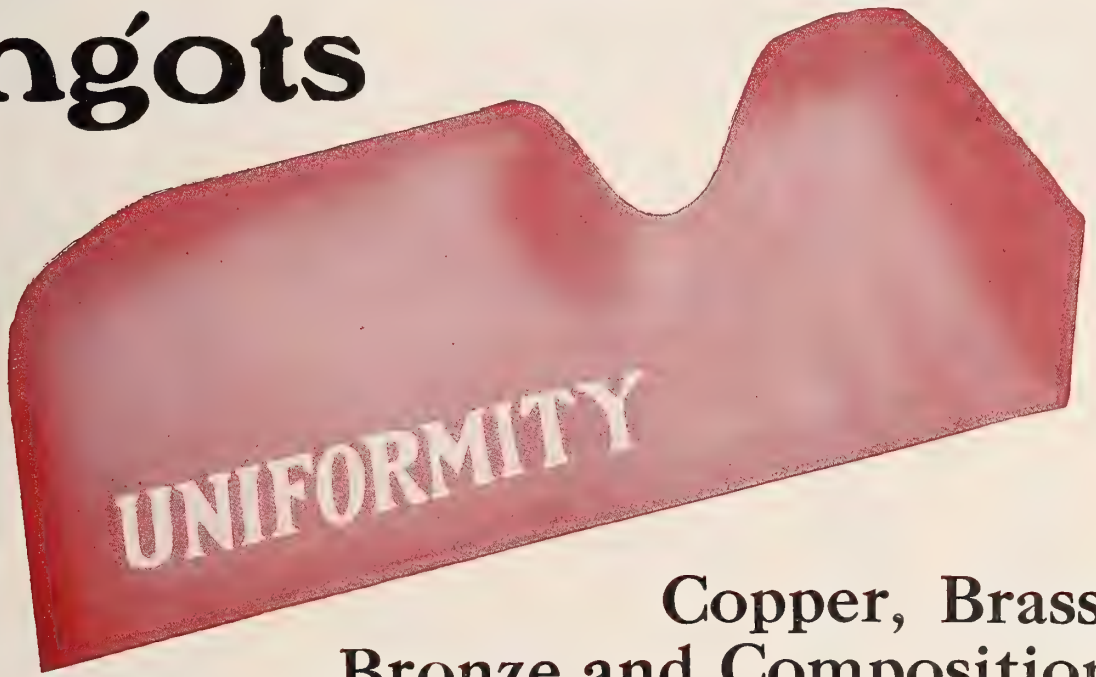
NEW TORONTO (Near Toronto) ONTARIO, CANADA

COPPER & BRASS BROWN'S QUALITY ROLLING MILLS



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Copper, Brass, Bronze and Composition

We purchase Copper Bearing Material. All enquiries receive prompt attention.

We make any alloy according to your Formula. Our INGOT COPPER is 99.9% pure—ideal for high-grade castings.

Brown's Copper & Brass Rolling Mills, Limited

NEW TORONTO - - ONTARIO

Near Toronto

COPPER & BRASS BROWN'S QUALITY ROLLING MILLS

MORRISON'S

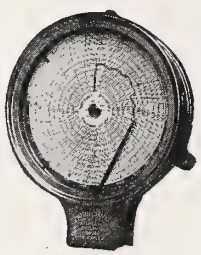
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Have a clear record of success.

They represent the highest quality and most modern designs in their lines. An unconditional guarantee plus fifty years' manufacturing experience stands between each and every line that we produce.

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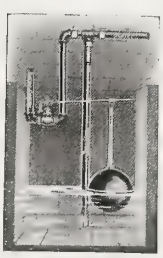
All goods tested before leaving factory.



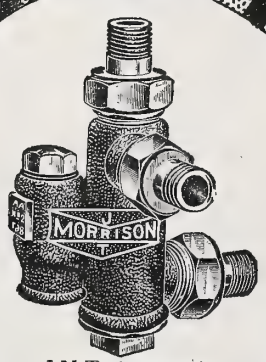
Morrison Recording Pressure Gauge takes a daily record of your Boiler Pressure



J.M.T. Brass Globe Valve, Renewable Disc



Morrison Automatic Ejector—removes accumulations of liquids by water pressure.



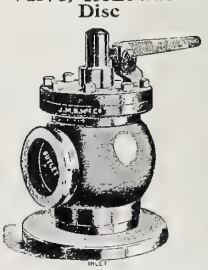
J.M.T. Automatic Injector



J.M.T. Reducing Pressure Valve



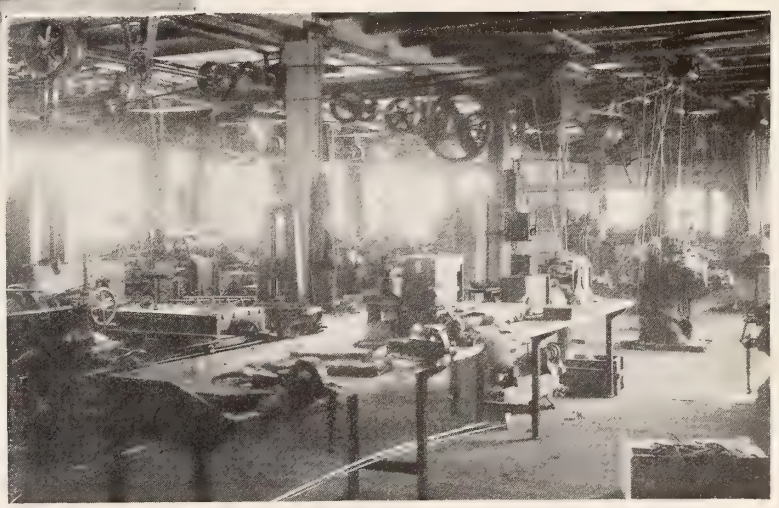
J.M.T. Brass Y Valve, Renewable Disc



Pop Safety Valve, made screwed and flanged



THESE illustrations show our Factory Building, and give some idea of the up-to-date manner in which it is equipped.



THE New Addition recently completed is a one-story Building of Brick and Mill Construction, 52' x 85', provision being made for an additional story being added at any time. The roof was made especially rigid and strong to take care of overhead machinery, so that there would be the minimum of vibration.

The lighting is excellent, in that the maximum amount of natural lighting is procured by large steel sash and skylights. The artificial lighting has been carefully and successfully worked out. The floor is finished in hardwood, the wood sleepers being well bedded in a heavy under floor of concrete.

The new addition is joined directly to old work by taking out the adjoining walls entirely, making the entire first floor one. The equipment is of the finest and especially selected for the production of the most accurate work.

We are Manufacturers of

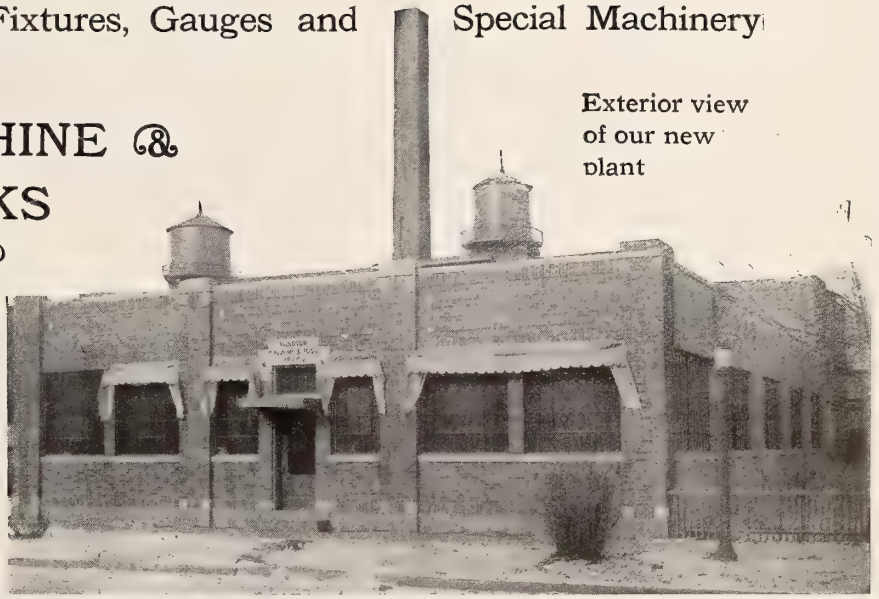
MUNITIONS GAUGES

Jigs, Tools, Dies, Fixtures, Gauges and Special Machinery

WINDSOR MACHINE & TOOL WORKS

WINDSOR, ONTARIO

Exterior view of our new plant



The plant described above was built on service. Let us serve you.

A Valuable Clearing House of Information

Detailed Explanation of the Programme of the Imperial Institute for Supplying Information and Technical Advice Respecting Raw Materials

By ARTHUR J. HEDGELAND
Secretary to the Executive Council

THE Executive Council of the Imperial Institute desire to bring to the notice of Boards of Trade and other organizations in Canada the operations of the Imperial Institute, especially as regards the facilities it now possesses for supplying information and technical advice respecting raw materials and their value for commercial purposes.

A committee has now been formed for each Dominion, with the High Commissioner as chairman. The Committee for Canada includes the Hon. Sir George Perley, K.C.M.G., Acting High Commissioner for Canada (Chairman); Mr. J. G. Colmer, C.M.G., for many years Secretary to the High Commissioner's Office in London; Mr. R. M. Kindersley, a Director of the Bank of England and Governor of the Hudson's Bay Company; Mr. J. H. Plummer, of the Dominion Steel Corporation; and Sir Keith Price, of the firm of Messrs. Price and Pierce, timber and pulp merchants. Lord Islington, Chairman of the Executive Council, and Professor Wyndham R. Dunstan, Director of the Imperial Institute, are *ex-officio* members of the Committee. This Committee meets periodically to receive reports and make suggestions regarding the work of the Imperial Institute for Canada.

Objects of the Institute.

The principal objects of the Institute are to assist producers overseas to find appropriate openings for raw materials and primary manufactures, and also to furnish manufacturers throughout the Dominions with information as to the sources of supply, composition and quality of raw materials which they need, and especially those which occur within the Empire. A valuable adjunct to the Institute's work is provided by the exhibition galleries, in which there is a comprehensive exhibit of the agricultural, mineral and other resources of Canada, which is not only of great utility in connection with the work referred to, but is of general and educational importance in providing an object lesson in the possibilities of the Dominion. The Committee for Canada hope to be able to improve and extend still further this exhibition in the interests of the Dominion. It is intended, in addition to maintaining the comprehensive collections in the exhibition galleries in London, to arrange for special exhibitions of raw materials throughout the country, in co-operation with the Chambers of Commerce.

The Institute, in its several departments, possesses an expert staff, with special knowledge of the various groups of raw materials and their industrial and commercial uses. The staff attached to the Information Department deals with enquiries as to the sources of supply and modes of utilization of all raw materials, prepares statements for distribution and publication, and answers all requests for information received at the Institute from this country and from the Dominions, Colonies and India. The staff attached to the laboratories is engaged in investigating the composition and value for commercial purposes of all samples received for report. The various Technical Advisory Committees appointed under the new Constitution, which include well-known technical and commercial experts, are in close touch with all this work as well as with that of the exhibition of materials. In order to illustrate the kind of assistance which the Institute can render, the following recent examples of some of its operations on behalf of the Dominion may be quoted:—

Canadian Timbers.—The Imperial Institute has taken action with the Imperial Government with a view to extending the use for government purposes of Canadian timbers in the United Kingdom. The Timbers Committee of the Imperial Institute, which includes representatives of the Royal Institute of British Architects, the Institute of Builders, the Carpenters' Company and the Timber Trades Federation of the United Kingdom, is also giving attention to this matter, and in this way it is hoped to extend the general use of Canadian timbers in the United Kingdom.

Canadian Manganese Ore.—Before the war the British demand for the special quality of manganese ore required for dry electrical batteries was chiefly met through Germany. The Imperial Institute ascertained that one of the manganese mines in Canada could produce ore of the high quality required. Samples and quotations were procured and brought to the notice of manufacturers in the United Kingdom, and orders have now been placed by firms in this country for supplies of the Canadian ore. The work of the Institute on minerals is now carried on with the advice of an Advisory Committee on Mineral Resources, consisting of Brigadier-General G. K. Cockerill, C.B., nominated by the War Office; Mr. W. J. Glenny, nominated by the Board of Trade; Professor J. W. Gregory, F.R.S.; Sir Robert Hadfield, Bart., F.R.S.; Dr. F. H. Hatch, F.G.S.; Mr. G. T. Holloway, A.R.C.S., F.I.C.; Sir Richard Redmayne, K.C.B., nominated by the Home Office; the Rt. Hon. Lord Rhondda; Vice-Admiral Sir Edmond Slade, K.C.V.O., K.C.I.E., nominated by the Admiralty.

Indian Raw Materials for Canada.—At the request of the Secretary of State for India the Imperial Institute is conducting an enquiry into the possibility of extending the use by manufacturers of the various raw materials of India in the United Kingdom and in the Dominions. Trial consignments of Indian cowhides—some millions of which used to be exported for tanning to Germany and Austria—have been supplied through the Ministry of Trade and Commerce in Canada to a number of Canadian tanners, and, to meet the wishes of other firms, arrangements have been made with the Ministry of Trade and Commerce for the exhibition of a representative collection of Indian cowhides at convenient centres throughout the Dominion.

An Important Central Agency.

Similar action is being taken regarding Indian shellac, which has so far reached Canada chiefly through the United States. It has been ascertained through the Ministry of Trade and Commerce that a number of important firms in Canada are interested in this subject and their co-operation is being enlisted.

These few examples will make it clear that the Imperial Institute is now in a position to act as an important central agency for the promotion of Inter-Imperial commerce and trade.

The Committee for Canada desires to enlist your co-operation and invites suggestions and requests for special informa-

CANADIAN TUBE & IRON CO., LIMITED

Manufacturers of

BOLTS and NUTS

Carriage Bolts,
Coach and
Lag Screws,
Tire Bolts,
Machine Bolts,
Sleigh Shoe
Bolts,
Plow Bolts,
Track Bolts,
Square Nuts,
Hexagon Nuts,
Boiler Rivets,
Tinners'
Rivets, Etc.

WROUGHT PIPE

Black and Galvanized, sizes ⅛ in. to 4 in., is thoroughly inspected and tested to 600 lbs. pressure, and every length is branded with our trade-mark.

We also Manufacture

NIPPLES and COUPLINGS

Black and Galvanized in all sizes

Works: Lachine Canal, Montreal

Selling Agents for

Canadian Rolling Mills Co., Limited

Works: Lachine Canal, Montreal

MANUFACTURERS OF

Bar Iron and Steel

IN ROUNDS, FLATS AND SQUARES

ALSO

Twisted Steel Bars for Reinforcing

Selling Agents for

Colonial Wire Mfg. Co. Limited

Works: Lachine Canal, Montreal

MANUFACTURERS OF

SMOOTH STEEL WIRES

Bright, Annealed, Oiled and Annealed, Coppered and Coppered Spring.

TINNED MATTRESS WIRE
BROOM WIRE FINE WIRES
(Plain and Galvanized)

FENCE STAPLES
WIRE NAILS
WOOD SCREWS

PUMP RODS
(Plain and Galvanized)

TRADE MARK

tion, and it is hoped that you will give full publicity to the increased facilities which the Imperial Institute now affords for assistance, especially in connection with the utilization of raw materials.

It should be remembered that the Imperial Institute is not only concerned with scientific research, but is equipped for investigating and supplying information respecting technical and commercial matters. In this respect it performs duties which are additional to those of the Board of Trade, a department of His Majesty's Government in London with whom it has been officially arranged that the Imperial Institute shall in future deal with enquiries respecting the raw materials of the Empire, their sources of supply and utilization. In this connection it will be seen that a Raw Materials Committee, nominated by the Association of Chambers of Commerce of the United Kingdom, has been appointed to take action on the results of work performed and information collected at the Imperial Institute. This Committee includes representatives of Chambers of Commerce throughout the country, and affords an additional link of great importance for the operations of the Imperial Institute with the commercial community of the United Kingdom and for the development of trade with different parts of the Empire.

The *Bulletin of the Imperial Institute* is the principal medium for the publication of information collected and of the results of the enquiries conducted, and other special publications, including commercial circulars, are issued from time to time.

It will be seen that the sphere of the Imperial Institute is now clearly defined, and the Committee for Canada desire that its work should supplement and not overlap with that of other organizations, either for scientific research or for other purposes, whether established in this country or in the Dominion, but that cordial co-operation with such agencies should be arranged with the Imperial Institute as a general clearing house for the Empire.

So far as Government enquiries from Canada are concerned, the Institute is in communication through the High Commissioner with the Department of Trade and Commerce in Canada and also with the Provincial Governments of the Dominions. Suggestions and requests for information are now invited from all organizations in Canada which are in any way concerned with the operations briefly described in this letter.

Enquiries will be welcomed about Canadian raw materials and primary manufactures and as to the provision of possible markets for such articles in the United Kingdom and in the other parts of the Empire.

Enquiries from Canada for raw materials, etc., from other countries are cordially invited, and every endeavor will be made in all cases of the kind to bring producers and users into communication with each other.

At the same time, it should be emphasized that the Institute is in a position to supply technical reports as to the value of any raw materials, etc., that may be submitted for investigation and to give information as to the best means to exploit these when they are found to be of commercial value and likely to be useful in the development of the industries and commerce of the Empire.

TRAFFIC NEWS.

Dr. H. A. Garfield, fuel administrator, announced on Monday of this week that henceforth no coal may be exported from the United States, except to Canada, until a license has been obtained. It is the intention to allow none exported except for purposes connected with the winning of the war.

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES.

1. **Bobbins and Spools.**—There is a probability that a firm newly entered in this line will be in a position to place agencies for domestic territory. Any fully qualified agent who has a connection in this line should communicate with this office.
2. **Mercury.**—A Toronto house is desirous of getting supplies in Canada of mercury for dental purposes.
3. **Agencies.**—A business man who has had considerable experience in sales managing and the selling of specialties is open to consider an opportunity in these lines, or will undertake to represent good firms on a commission basis from the Prairie Provinces to the Coast.
4. **Gumwood Chucks.**—An Ontario manufacturer of plated ware makes an enquiry for gumwood chucks used on small lathes. Anyone in a position to supply these should communicate with this office.
5. **Tin Plate.**—A user of considerable quantities of tin plate in Ontario would like to hear from anyone with surplus stock.
6. **Agencies.**—An agent in British Columbia, who has connections with the furniture trade, is in a position to undertake additional agencies for furniture, house furnishings and upholsterers' supplies.

IMPORT TRADE ENQUIRIES.

7. **Oils.**—A firm in British Columbia, whose business is the importing of fish, bean, castor, cotton seed, cocoanut and china wood oils from the Orient, are desirous of getting in direct communication with manufacturers who use these oils. This office will be pleased to forward the names of any manufacturers interested to the importer.
8. **Electric Conduit.**—A well-known New York export house would like to hear from manufacturers of electrical conduit tubing who are in a position to offer early deliveries for the export trade.
9. **Winter Wheat Flour.**—A New York export commission house is desirous of locating a number of firms who can supply them with soft winter wheat flour for export.
10. **Cooperage Stock.**—The above firm would also ilke to hear from Canadian manufacturers who are in a position to supply cracker barrels in knock-down form.
11. **Export Representation.**—A Canadian business man who has had considerable experience in domestic trade, and who has also travelled Central America and the West Indies in the interest of Canadian houses, is desirous of getting in touch with a group of manufacturers who would be willing to go into a plan of developing the export trade in these localities together with possibly South America on an expense-sharing basis. This office will be pleased to go further into the question with any manufacturer who is interested in developing trade in these countries but who feels that it is too expensive to send down one of their own men.

FORTY-EIGHTH ANNUAL STATEMENT OF
The Royal Bank of Canada
GENERAL STATEMENT—30th November, 1917

LIABILITIES

TO THE PUBLIC:		
Deposits not bearing interest	$70,498,667 26	
Deposits bearing interest, including interest accrued to date of statement	182,488,715 55	
		$252,987,382 81
Notes of the Bank in circulation		28,159,351 49
Balance due to Dominion Government		14,582,659 38
Balances due to other Banks in Canada	364,787 53	
Balances due to Banks and Banking Correspondents in the United Kingdom and foreign countries	5,801,808 96	
		6,166,596 49
Bills Payable		297,494 63
Acceptances under Letters of Credit		5,510,310 96
		$307,703,795 76
TO THE SHAREHOLDERS:		
Capital Stock Paid in		12,911,700 00
Reserve Fund	$14,000,000 00	
Balance of Profits carried forward	564,264 53	
		14,564,264 53
Dividend No. 121 (at 12 per cent. per annum), payable December 1st, 1917	$387,351 00	
Dividends Unclaimed	7,075 23	
		394,426 23
		$335,574,186 52

ASSETS

Current Coin	$16,079,830 91	
Dominion Notes	18,284,444 75	
	$34,364,275 66	
Deposit in the Central Gold Reserves	16,000,000 00	
Deposit with the Minister for the purposes of the Circulation Fund	645,585 00	
Notes of other Banks	5,308,203 91	
Cheques on other Banks	15,283,364 45	
Balances due by other Banks in Canada	229,868 41	
Balances due by Banks and Banking Correspondents elsewhere than in Canada	10,704,338 84	
Dominion and Provincial Government Securities, not exceeding market value	22,322,197 31	
Canadian Municipal Securities and British, Foreign and Colonial Public Securities other than Canadian, not exceeding market value	21,586,545 77	
Railway and other Bonds, Debentures and Stocks, not exceeding market value	12,777,503 85	
Call Loans in Canada, on Bonds, Debentures and Stocks	12,040,687 27	
Call and Short (not exceeding thirty days) Loans elsewhere than in Canada	14,574,136 32	
		$165,836,706 79
Other Current Loans and Discounts in Canada (less rebate of interest)	$102,358,027 10	
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)	53,764,037 92	
Overdue Debts (estimated loss provided for)	490,064 82	
		156,612,129 84
Real Estate other than Bank Premises		1,114,552 61
Bank Premises, at not more than cost, less amounts written off		6,371,329 36
Liabilities of Customers under Letters of Credit, as per contra		5,510,310 96
Other Assets not included in the foregoing		129,156 96
		$335,574,186 52

H. S. HOLT, President. EDSON L. PEASE, Managing Director. C. E. NEILL, General Manager.

AUDITORS' CERTIFICATE

We report to the Shareholders of The Royal Bank of Canada:

That in our opinion the transactions of the Bank which have come under our notice have been within the powers of the Bank.

That we have checked the cash and verified the securities of the Bank at the Chief Office at 30th November, 1917, as well as at another time, as required by Section 56 of the Bank Act, and that we found they agreed with the entries in the books in regard thereto. We also during the year checked the cash and verified the securities at the principal branches.

That the above Balance Sheet has been compared by us with the books at the Chief Office and with the certified returns from the Branches, and in our opinion is properly drawn up so as to exhibit a true and correct view of the state of the Bank's affairs according to the best of our information and the explanations given to us and as shown by the books of the Bank.

That we have obtained all the information and explanations required by us.

Montreal, Canada, 18th December, 1917.

JAMES MARWICK, C.A., S. ROGER MITCHELL, C.A., } Auditors. of Marwick, Mitchell, Peat and Co.

PROFIT AND LOSS ACCOUNT

Balance of Profit and Loss Account, 30th November, 1916	$852,346 28	
Profits for the year, after deducting charges of management and all other expenses, accrued interest on deposits, full provision for all bad and doubtful debts and rebate of interest on unmatured bills	2,327,979 51	
		$3,180,325 79
Appropriated as follows:		
Dividends Nos. 118, 119, 120 and 121, at 12 per cent. per annum	$1,549,404 00	
Transferred to Officers' Pension Fund	100,000 00	
Written off Bank Premises Account	250,000 00	
War Tax on Bank Note Circulation	128,357 26	
Contribution to Patriotic Fund	60,000 00	
Transferred to Reserve Fund	528,300 00	
Balance of Profit and Loss carried forward	564,264 53	
		$3,180,325 79

RESERVE FUND

Balance at Credit, 30th November, 1916	$12,560,000 00
Premium on New Capital Stock issued to Quebec Bank Shareholders	911,700 00
Transferred from Profit and Loss Account	528,300 00
Balance at Credit, 30th November, 1917	$14,000,000 00

H. S. HOLT, President. EDSON L. PEASE, Managing Director. C. E. NEILL, General Manager.

Montreal, 18th December, 1917.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE.

12. **Heating Appliances, Flooring, Etc., Paints and Oils.**—An enquirer in Newfoundland wishes to be placed in touch with Canadian manufacturers of church and house-heating appliances, maple flooring and cedar shingles, paints and oils.

13. **Disc Harrows.**—A Belfast firm of agricultural implement dealers wish to get into communication with exporters of disc harrows, with a view to after-the-war business.

14. **Tinned Mattress Wire.**—A Birmingham firm are open to purchase large quantities of tinned mattress wire, 23 gauge.

15. **Tractors.**—Canadian manufacturers of tractors using paraffin or crude oil for preference who desire to export same are asked to communicate with a firm in Gloucester, England.

16. **Ploughs.**—A concern in Gloucester, England, desires to import riding ploughs for three furrows reducible to two furrows when the soil is heavy; to be used with two or three horses.

17. **Rubber Hose.**—A concern in Gloucester is prepared to purchase ½-inch, ¾-inch, 1-inch, 1¼-inch rubber hose in 500 foot lengths.

18. **Tractors.**—A South African firm of engineers ask for details from firms manufacturing crude oil tractors, suitable for hillwork ploughing on sugar plantations and tractors for two-foot gauge, powerful for hauling, to take grade 1.6, haul 40 tons on grade, 200 tons on level.

19. **Macaroni.**—A London firm asks to be placed in touch with Canadian manufacturers of macaroni.

20. **Collapsible Tubes.**—A wholesale drug company at Sydney, Australia, asks for samples of composition collapsible tubes (made of lead in centre and coated with tin inside and out, about 6 per cent. tin in total tube); f.o.b. steamer quotations for large quantities are desired. Pure tin tubes are too costly for the purpose the composition tubes are required.

21. **Formaldehyde, 40 per cent.**—A Melbourne firm asks for samples and lowest wholesale f.o.b. steamer quotations on formaldehyde in wood casks.

22. **Nickel Oxide, White Powdered Arsenic, Sodium Acetate.**—A firm in Liverpool wishes to get into communication with exporters of the above lines.

23. **Limewashing and Spraying Machines.**—A Gloucester firm has sale for these machines for spraying potatoes, fruit trees, plants and shrubs; also stationary lime-washer. Will Canadian exporters communicate.

24. **Furniture, Etc.**—A Newfoundland dealer inquires for Canadian manufacturers of church and high-class household furniture, machine-pressed carvings, and mouldings.

25. **Flexible Metallic Tubes for Gas and Acoustic Purposes.**—A Toronto company wishes to import the above.

26. **Iron Bars (round and square), Iron Water and Gas Pipes, Steel Plates.**—An agent at Rome wishes to represent manufacturers of the foregoing articles.

27. **Asbestos.**—A large importing house in Milan and Genoa with Canadian references will be pleased to negotiate with Canadian shippers of asbestos.

28. **Mica and Asbestos.**—A Genoese firm which handles metals, raw materials, chemicals, etc., would be pleased to place orders in Canada for mica and asbestos.

29. **Hardware, Agricultural Instruments and Kitchenware.**—An old established house in Milan, with travelling representatives in Italy, is desirous of getting in touch with Canadian manufacturers who handle agricultural instruments such as garden rakes, spades, shovels, scythes, also files and drills and general hardware products and kitchen utensils.

30. **Tool Handles.**—A Northampton firm is open to import all kinds of tool handles.

31. **Asbestos Wick Packing.**—A New York exporting house requires asbestos wick packing to be delivered at the rate of 20,000 pounds per month during 1918.

32. **Spruce Spars for Shipbuilding.**—A Vermont firm having a large contract with the United States navy to furnish spars for shipbuilding would like to secure supplies in Canada especially for the larger sizes, from 10 inches diameter one-third up from butt up to 14 inches or more, and lengths from 40 to 70 feet. Delivery must be made at a railway in Quebec, New Brunswick or Nova Scotia. The contract calls for spruce, straight, sound, fresh cut, free from large knots, wind shakes, or other imperfections.

33. **Copper and Brass.**—A Johannesburg firm of engineers ask for correspondence from Canadian manufacturers of copper and brass goods suitable for mining and railway supplies.

34. **Shovels and Spades.**—A Johannesburg firm making a specialty of mining supplies, are prepared to take up a Canadian agency on purchase system for shovels and spades. Catalogues and correspondence requested.

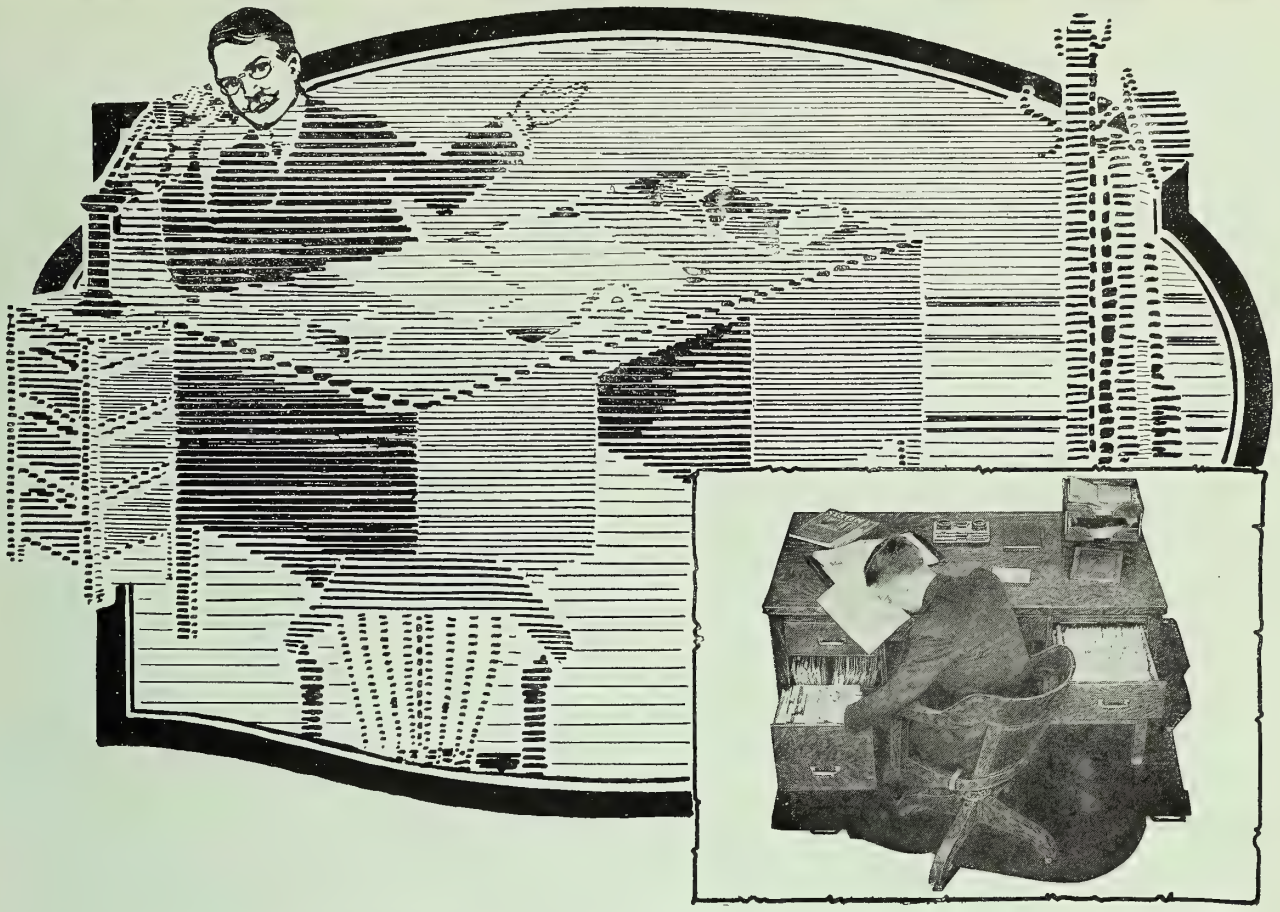
35. **Belting.**—A Johannesburg firm with established connection in belting are prepared to take up the Canadian representation of conveyor belts.

36. **Wood Dowels**—A Bristol firm desires to be put in touch with a Canadian manufacturer of wood dowels.

A GREAT POWER ZONE.

Range of Territory Covered by Southern Power Company's System Largest East of Niagara Power Zone.

The Southern Canada Power Company's operations cover an exceptionally wide range of territory, doubtless the largest east of the Niagara power zone. On the south, power is carried across the international boundary into Derby, Vermont. On the west, the transmission lines approach as near to Montreal as St. Johns, Iberville, St. Hilaire and Belloeil. On the north, Drummondville and adjacent municipalities are tapped, while on the east the principal points of consumption are Sherbrooke, Lennoxville, Richmond and Compton. These distances are approximately 70 to 75 miles east and west, north and south. It is quietly but gradually developing into an important development, and is extending a network of power wires throughout the south-eastern section of the Province of Quebec, and working up the available hydro-electric propositions in that area. The company at present has under construction about 85 miles of transmission lines from Sherbrooke to Granby and Cowansville, from Sherbrooke to Bromptonville, and from St. Cyrille to St. Germain through Drummondville, with the necessary substations and distribution systems. The power development at Richmond, Drummondville, Foster and Granby are being considerably improved and enlarged and put into shape for the most economical operation, through the transmission lines, with the other plants of the company.



"It's Helping me to Greater Efficiency"

"I used to leave all my important papers—the records I use a dozen times in a day—to my assistant. She looked after them all—saw that they were filed away. *I was dependent on her, absolutely.* If she slipped up a bit and let an important paper get by, I was nonplussed when I needed it. Or if she were away, all the wanting in the world wouldn't do me any good. No use in fuming, either—I just had to wait."

"With the coming of my Efficiency Desk this was all changed."

"The papers I want to refer to quickly—those personal ones I'm liable to need at any moment in the day, are now kept right in my desk—filed just to suit my needs, where I can get the one I want in a second. My records, too are all kept in a drawer right at my fingers' ends."

"This "Office Specialty" Efficiency Desk gives me speed—eliminates costly delays while someone's hunting up a paper—keeps me in a better frame of mind. That's why I say: It's helping me to *greater efficiency.*"

Other business men—*probably you*—are up against this same problem of getting the paper they want when they want it. If you want to know an easy, sure way out—and a way that doesn't mean loading a bit of detail on your shoulders—write to-day to our nearest branch, or Home Office direct, for a Folder describing the "Office Specialty" Efficiency Desk.

THE OFFICE SPECIALTY MFG. CO., LIMITED

Home Office NEWMARKET Canada

Filing Equipment Stores at:

Toronto Montreal Ottawa Halifax Hamilton Winnipeg Regina Edmonton Vancouver

OFFICE SPECIALTY

LABOR SAVING OFFICE DEVICES — TIME IS MONEY

FILING SYSTEMS

TWO in ONE DESKS



A Two-in One Desk is really an office desk and typewriter desk in one. It is equipment concentration. It makes the typewriter instantly accessable without disturbing papers on top of the desk or causing the operator to move from her seat. Add to this typewriter desk its convenience as a flat top desk and you have in every sense two desks in one. Two-in-One Desks become more necessary as your business grows, enabling you to organize, intensify and concentrate your office work. Come in, let us show this desk. Our Office Furniture catalog sent on request.

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EVERYTHING FOR THE OFFICE
Wellington and Jordan Sts.
TORONTO

Paper Coaters of Canada This Will Interest You

We can supply your demand for high-grade

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MADE IN CANADA

Save delay by ordering from us. Our services are at your disposal.

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1324 Bank of Hamilton Bldg. - Toronto, Ont.

Davis & Henderson

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Lithographers Embossers

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Write for Sample Sheet of Lithographed Letterheads, Envelopes and Cheques

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COMPANY, LIMITED

LITHOGRAPHERS, ENGRAVERS, ETC.

Letter Paper, Invoice Forms, and other Office Stationery, Show Cards, Calendars and Catalogue Covers, Folding Boxes

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PHONE JUNCTION 784

THE BROWN BROTHERS
LIMITED
Simcoe and Pearl Sts. TORONTO



MANUFACTURERS OF
ACCOUNT BOOKS, LOOSE LEAF LEDGERS
Binders and Specialties
LEATHER GOODS—DIARIES—STATIONERY
Printers' and Bookbinders' Supplies

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HOUPT PAPER MILLS
LIMITED
MANUFACTURERS

Sales Office: 79 SPADINA AVE. TORONTO
Mills: CAMDEN EAST ONT.

PURE VEGETABLE PARCHMENT
GREASEPROOF
BLEACHED SPECIALTIES
NO. 1 M. F. KRAFT
TOILET PAPERS
ADDING MACHINE ROLLS

J. Ford & Co.
PORTNEUF, QUE.

Paper
MANUFACTURERS

—MANUFACTURE—
WRAPPING HANGING BAG
HARD SIZED NEWS
AND COLORED POSTER PAPERS
ALSO ROOFING, CARPET AND LINING FELTS

INQUIRIES ARE SOLICITED

BANK OF MONTREAL

Established 100 Years (1817-1917)

Capital Paid Up - -	$16,000,000
Rest - - - - - -	16,000,000
Undivided Profits - -	1,664,893
Total Assets - - -	$403,980,236

BOARD OF DIRECTORS:

Sir Vincent Meredith, Bart., President
Sir Charles Gordon, K.B.E., Vice-President

R. B. Angus, Esq. — Major Herbert Molson, M.C.
Lord Shaughnessy, K.C.V.O. — Harold Kennedy, Esq.
C. R. Hosmer, Esq. — H. W. Beauclerk, Esq.
H. R. Drummond, Esq. — G. B. Fraser, Esq.
D. Forbes Angus, Esq. — Colonel Henry Cockshutt
Wm. McMaster, Esq. — J. H. Ashdown, Esq.

Head Office: MONTREAL

General Manager, Sir Frederick Williams-Taylor

Assistant General Manager, A. D. Braithwaite

Branches and Agencies: Throughout Canada and Newfoundland; Also at London, England; And New York, Chicago and Spokane in the United States

A GENERAL BANKING BUSINESS TRANSACTED

THE CANADIAN BANK OF COMMERCE

SIR EDMUND WALKER, C.V.O., LL.D., D.C.L., President

SIR JOHN AIRD, General Manager — H. V. F. JONES, Ass't General Manager

CAPITAL PAID-UP, $15,000,000
RESERVE FUND, $13,500,000

Extension of Canadian Trade

The Bank will make enquiries into the possibilities and requirements of markets abroad for exporters or importers who desire to extend their trade with British colonies or possessions. Owing to the large number of its correspondents and agents it has unusual facilities for this work.

S.57

THE ROYAL BANK OF CANADA

Incorporated 1869

Capital Authorized.....$25,000,000
Capital Paid Up $12,911,700
Reserve & Undivided Profits..$14,324,000
Total Assets.....$295,000,000

HEAD OFFICE, MONTREAL

BOARD OF DIRECTORS

Sir Herbert S. Holt, President — E. L. Pease, Vice-President and Man. Director — E. F. B. Johnston, K.C., 2nd Vice-President

Jas. Redmond	A. J. Brown, K.C.	G. H. Duggan
G. R. Crowe	W. J. Sheppard	C. C. Blackadar
D. K. Elliott	C. S. Wilcox	John T. Ross
Hon. W. H. Thorne	A. E. Dyment	R. MacD. Paterson
Hugh Paton	C. E. Neill	G. G. Stuart, K.C.
Wm. Robertson	Sir Mortimer B. Davis	

OFFICERS

E. L. Pease, Managing Director
C. E. Neill, General Manager — F. J. Sherman, Asst. Gen. Manager
W. B. Torrance, Superintendent of Branches

Branches in every Province of the Dominion of Canada and in Newfoundland; in Havana and throughout Cuba, Porto Rico, Dominican Republic, Costa Rica and Venezuela; Antigua, St. John's; Bahamas, Nassau; Barbados, Bridgetown; Dominica, Roseau; Grenada, St. George's; Jamaica, Kingston; St. Kitts, Basseterre; Trinidad, Port of Spain, San Fernando; British Guiana, Georgetown, New Amsterdam; British Honduras, Belize.

LONDON, ENG., OFFICE—Princes St., E.C.

NEW YORK AGENCY—Corner William and Cedar Sts.

Savings Department at All Branches

ESTABLISHED 1875

IMPERIAL BANK OF CANADA

CAPITAL PAID UP $7,000,000 — RESERVE FUND $7,000,000

PELEG HOWLAND, President — E. HAY, General Manager

The Imperial Bank offers exceptional banking facilities to Canadian manufacturers. Branches throughout Canada. Agents and correspondents in all the world centres.

EXCHANGE

Domestic and Foreign Exchange bought and sold.

GOVERNMENT AND MUNICIPAL SECURITIES

dealt in at all branches.

COLLECTIONS

made at all points in Canada and in foreign centres.

DRAFTS

Money Orders and Letters of Credit issued available throughout the world.

SAVINGS

received at all branches—interest credited half-yearly at current rate.

Accounts of Merchants and Manufacturers solicited.

HEAD OFFICE - TORONTO

UNION BANK OF CANADA

Established 1865 Head Office, Winnipeg

Paid-up Capital.....$5,000,000 Reserve Fund.....$3,400,000

Total Assets over.....$140,000,000

IN EXTENDING YOUR EXPORT TRADE

You will find the facilities offered by the Union Bank of Canada a decided advantage in handling Drafts, Collections and Foreign Exchange.

The Commercial Information Bureau established in connection with the Foreign Exchange Departments of our London (Eng.), New York and Montreal Offices is at your service.

London, England, Branches:
6 Princes St., E.C. Haymarket, S.W.

New York Agency: 49 Wall Street, New York City. GEO. WILSON, Agent

Established in 1836. Incorporated by Royal Charter in 1840.

THE BANK OF BRITISH NORTH AMERICA

Paid-up Capital - $4,866,666
Reserve Fund - $3,017,333

Statement to the Dominion Government (Condensed), 30th November, 1917

LIABILITIES TO THE PUBLIC.

Notes in Circulation	$ 5,814,764
Deposits	57,240,979
Due to other Banks	454,089
Bills Payable (Acceptances by London Office,	1,651,683
Acceptances under Letters of Credit	1,589,128
	$66,750,643

ASSETS.

Cash on Hand and in Banks	$12,184,173
Deposit with Government o/a Note Circulation	245,822
Deposits in Central Gold Reserve	2,420,000
Government, Municipal and other Securities	15,048,701
Call and Short Loans	7,456,138
Current Loans and Discounts and other Assets	35,169,405
Liabilities of Customers under Letters of Credit	1,589,128
Bank Premises	2,374,637
	$76,488,004

Riordon Pulp & Paper Company, Limited

Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS

CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72 INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

The Merchants Bank
of Canada

Head Office - MONTREAL

Paid-Up Capital - -	$7,000,000
Reserve Funds - -	7,421,292
Total Deposits - -	92,102,072
Total Assets - - -	121,130,558

BOARD OF DIRECTORS

SIR H. MONTAGU ALLAN, C.V.O., President
K. W. BLACKWELL, Vice-President

THOS. LONG, F. HOWARD WILSON, A. B. EVANS
F. ORR LEWIS, A. J. DAWES, E. F. HEBDEN
ANDREW A. ALLAN, F. ROBERTSON, THOS. AHEARN
C. C. BALLANTYNE, G. L. CAINS, LT.-COL. J. R. MOODIE

E. F. HEBDEN, Managing Director
D. C. MACAROW, General Manager
T. E. MERRETT, Superintendent of Branches and Chief Inspector

A GENERAL BANKING BUSINESS TRANSACTED

236 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

New York Agency: 63 and 65 WALL ST.

The Bank of Nova Scotia

ESTABLISHED 1832

Capital.....	$6,500,000
Reserve Fund	12,000,000
Total Assets ..... Over	110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
A. W. HOLMES, Toronto
ROBT. HUNGERFORD, Toronto
FRED KELLOND, Hamilton
S. J. MALLION, Stratford
MRS. A. BROWN-REDDICK, Toronto
H. J. TUTT, Toronto

Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent. Phone Main 5800

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works.
D. M. MEDCALF, Chief Inspector of Steam Boilers.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways.
W. C. McGHIE, Chairman of Board.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849

BRADSTREET'S

Capital and Surplus - - $1,500,000

Offices Throughout the Civilized World

Executive Offices: Nos. 346 and 348 BROADWAY, N.Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

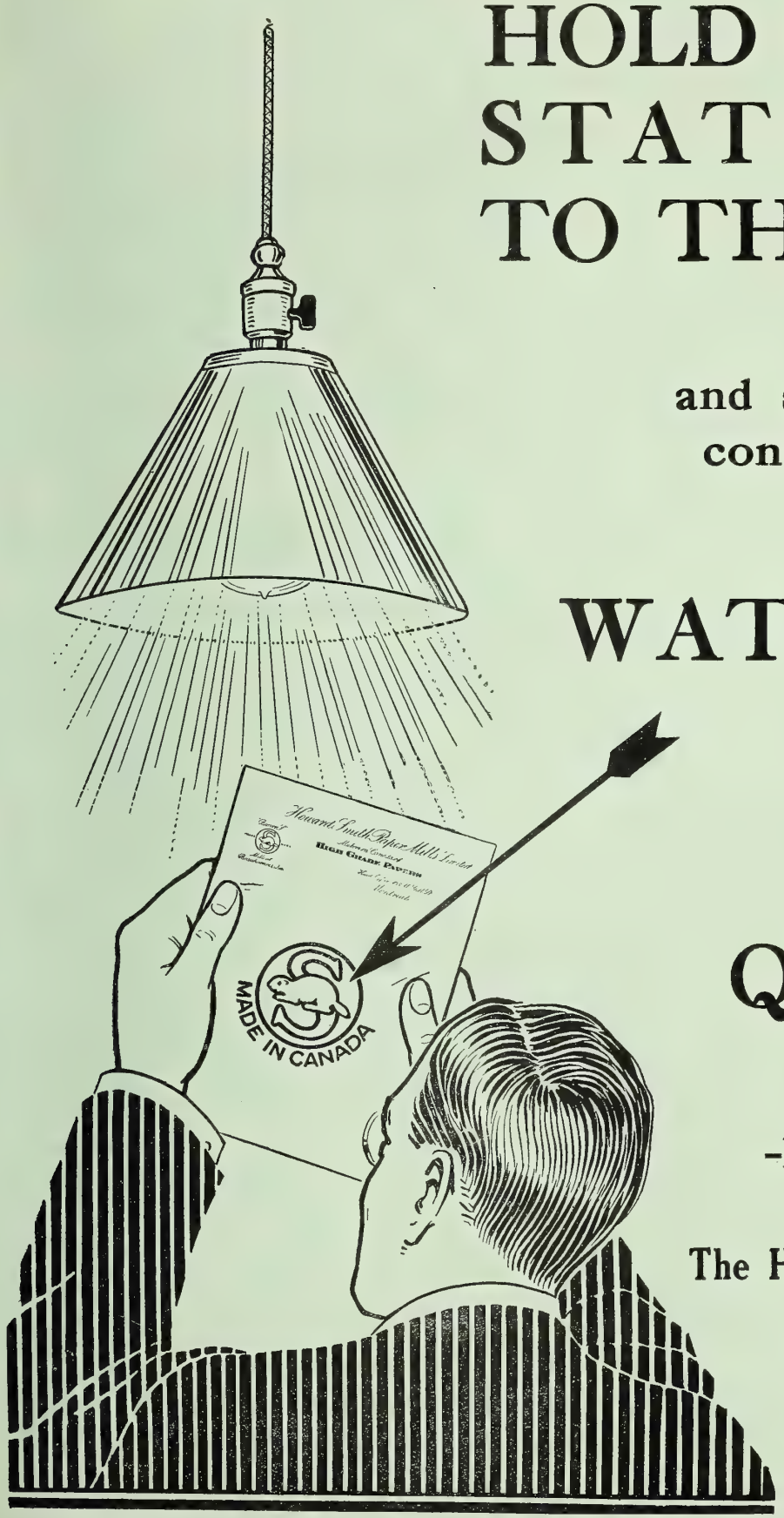
Subscriptions are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. CORRESPONDENCE INVITED.

Offices in Canada

Edmonton, Alta.	Hamilton, Ont.	London, Ont.
Halifax, N.S.	Ottawa, Ont.	Quebec, Que.
Montreal, Que.	Toronto, Ont.	Vancouver, B.C.
St. John, N.B.	Winnipeg, Man.	Calgary, Alta. Victoria, B.C. Sydney, N.S.

THOS. C. IRVING, Gen. Man. Western Canada, Toronto

HOLD UP YOUR STATIONERY TO THE LIGHT



and see that it contains this

WATERMARK

It is your guarantee for

QUALITY

-Made-in-Canada—

BY

The Howard Smith Paper Mills
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138 McGill St., MONTREAL

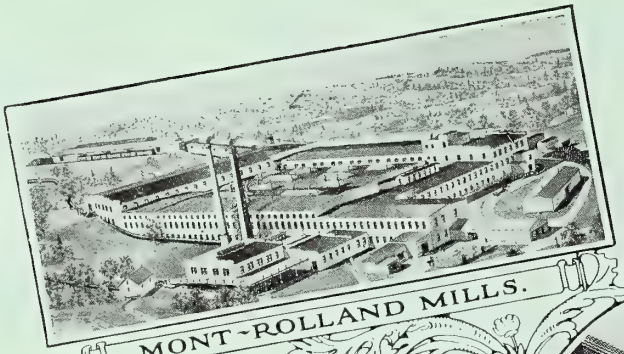
MILLS AT
BEAUHARNOIS, QUE. and
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AMONG THE MANY

MADE-IN-CANADA PRODUCTS

which compare favorably with any imported stock are

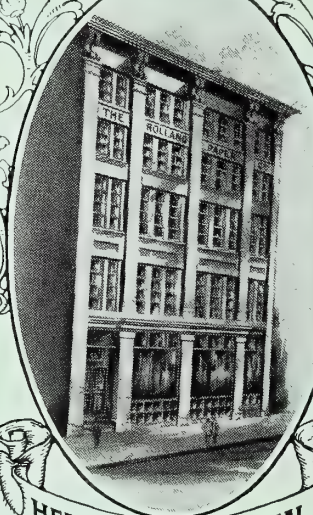
ROLLAND'S PAPERS



MONT-ROLLAND MILLS.



ST. JEROME MILLS.



HEAD OFFICE MONTREAL

SUPERFINE
LINEN RECORD

Earnscliffe
Linen Bond

STANDARD
Pure Linen

EMPIRE LINEN BOND

Crown Linen

PROVINCIAL
BOND

Rolland
Parchment

Colonial Bond

All of the above watermarks can be procured through any reliable Printer or Lithographer throughout the country.

Each brand is the best in its class and represents the utmost in value and quality that expert labour and modern machinery can turn out. There is a line suitable for every use, such as Letterheads, Envelopes, Blank Books, Loose Leaf Ledgers, Invoice and Statement Forms, and all kinds of Office, Store or Factory Stationery

Samples gladly furnished.

THE ROLLAND PAPER COMPANY, Limited

Established 1882

HIGH-GRADE PAPER MAKERS

General Offices—
142 St. Paul St. W.
Montreal, P.Q.

Mills at—
St. Jerome and
Mont-Rolland, P.Q.

ANNOUNCEMENT

THE new Studebaker cars, in three models, will be on exhibition at the Montreal Automobile Show. They embody our long experience together with the latest and greatest achievements of some of the ablest and most experienced engineers and production experts in the automobile industry. These cars are *new throughout*, with improved motors, intermediate transmission, new axles, bodies, tops, windshields, radiators, hoods, fenders, etc. They are beautiful in design, thoroughly modern and mechanically right.

Before finally approving these cars for production, experimental models of each car were driven 30,000 miles under the severest conditions, through the mountains and country roads of the United States and Canada, and finally over the Chicago Speedway. Never were we better satisfied with the performance of any cars, in power, speed, endurance and riding comfort. To make assurance doubly sure, the experimental cars, now running on the Chicago Speedway, will be kept running continuously until they negotiate 50,000 miles or more—about twice the distance around the earth. These cars are the masterpieces of the Studebaker organization.

The new cars include three models, all entirely different and each with an individual appeal. We *know* these cars will give our customers maximum service and economy, with practically no expense for repairs except from wear and tear or in the case of accidents.

The LIGHT FOUR Five-Passenger, shipping weight 2,400 lbs., wheelbase 112 inches, tires 32 x 3½", 35 H.P. motor 3½ x 5", hot spot manifold, intermediate transmission, improved semi-floating rear axle, Studebaker blue body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car or roadster, $1,245 f.o.b. Walkerville.

The LIGHT SIX Five-Passenger, shipping weight 2,800 lbs., wheelbase 119 inches, tires 32 x 4", 50 H.P. motor 3½ x 5", hot spot manifold, intermediate transmission, improved semi-floating rear axle, either blue or maroon body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car or roadster, $1,695 f.o.b. Walkerville.

The BIG SIX Seven-Passenger, shipping weight 3,000 lbs., wheelbase 126 inches, tires 33 x 4½", 60 H.P. demountable head motor, 3⅞ x 5", hot spot manifold, intermediate transmission improved semi-floating rear axle, either chrome green or maroon body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car, $2,295 f.o.b. Walkerville.

During 1915, 1916 and again in 1917, more Studebaker cars were registered and operated in the city of Detroit — the city which knows automobiles and the standing of manufacturers — than any other make of car selling over $500. The lesson is obvious.

Studebaker factories at Detroit, South Bend, Chicago and Walkerville, occupy 168 acres, contain 4,704,118 square feet of floor space, and represent an investment of over $15,000,000. There are no "assembler's" profits in the prices of Studebaker automobiles, because we design and manufacture our parts in our own plants, saving our customers from twenty to thirty per cent.

We commend these cars to the public and seek their patronage, in confidence that they will be entirely pleased with their purchase.

THE STUDEBAKER CORPORATION OF CANADA, LTD.

Walkerville, Ontario
January 14th, 1918

A R Erskine

President

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

*Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.

ALBERTA.

Calgary.

A permit has been issued to the Alberta Flour Mills for the erection of a $3,000,000 plant.

A large addition is being made to the plant of the Rolling Mill Co., to be used for the storage of scrap iron. The company also intend to install additional machinery to be in a position to keep up with the growing demand for their products.

BRITISH COLUMBIA.

Maillardville.

The erection of a $750,000 plant is being contemplated by the Swift Canadian Company.

Nanaimo.

The Giant Powder Co., whose plant was recently destroyed by fire, will rebuild immediately.

Pacofi.

The new kelp plant at Pacofi, Queen Charlotte Island, the property of the International Chemical Co., will shortly be ready for operation. It is equipped to handle 300 tons of kelp per day. In addition to extracting potash from the kelp, the company expects to manufacture potassium, and it also possesses equipment for handling dogfish by-products.

Port Renfrew.

The Great Northern Canneries of North Shore have commenced construction of another factory here.

Prince Clements.

The Graham Island Spruce and Cedar Co., Limited, have filed plans with the Minister of Public Works for a sawmill structure and other works which they propose to erect at Prince Clements, B.C.

Vancouver.

Seattle U.S.A., interests have secured site and have plans now under preparation for cordage and binder factory.

Messrs. J. Coughlin & Sons, who engaged in shipbuilding work some time ago, have deposited with the Minister of Public Works, plans of a wharf and four launching-ways which they propose to build at False Creek, Vancouver. They have recently closed a contract with the Imperial Munitions Board to build four 8,800-ton vessels at an estimated cost of about $1,250,000 each.

MANITOBA.

St. Boniface.

Contract has been awarded by the Prest-O-Lite Co., of Winnipeg, for the erection of a factory at a cost of $10,000.

Winnipeg.

The Transcona Shell Co., which has been operating the G.T.P. shops at Transcona will, it is understood, establish a plant for making munitions at Batavia, N.Y.

Manitoba Bridge & Iron Co. has an order for approximately four hundred tons of bolts, plates and other wooden ship material for the Imperial Munitions Board, all of which material requires to be galvanized. This firm has just recently installed the most modern and efficient galvanizing plant in Western Canada. The process used is the Meaker cold galvanizing system. The zinc is deposited electrically from a bath containing a solution of crystallized zinc sulphate and a series of stationary anodes. The resulting surface is lustrous, and any specification can be successfully met by this process. The plant was installed at a cost approximating $15,000.

The Vulcan Iron Works, Limited, are erecting a $65,000 warehouse.

NEW BRUNSWICK.

Moncton.

A plant, which, when in operation, will provide employment for 125 men and boys, is being erected by the Humphries Glass Works. This will be an up-to-date one-story building with concrete floor. The company expect to manufacture about the first of the new year.

St. John.

The Wilson Box Co., Limited, have recently purchased from James S. Robinson, of Cambridge, N.B., all his timber areas, covering some 3,000 acres, together with his sawmill at Cambridge. These limits contain a large quantity of standing timber, and will be of value to the box company as another source of supply from which to draw raw material for their steadily increasing box business. The terms are private, but the price asked is understood to have been $20,000.

The City Council will shortly discuss the proposal of the Booth Fisheries Co. to establish a sardine factory at a cost of $100,000.

NOVA SCOTIA.

New Glasgow.

Extensions and repairs are being contemplated by the Nova Scotia Steel & Coal Co., Limited, costing $4,000,000.

ONTARIO.

Arnprior.

It is understood that Mr. M. J. O'Brien contemplates the erection of a large industrial plant on the Malloch property at Arnprior, Ont., and also the development of water power on the Madawaska River. While no definite figures have been given out, it is reported that expenditure on this development may run upwards of three million dollars.

"Put it on Wheels"



Style No. 200.

How are "You" meeting the problem of keeping up production against the shortage of man-power?

Here is one way.

By routing your product in the course of manufacture, on specially designed Trucks—Trucks designed by you for your particular need.

We will be glad to tell you what such Trucks will cost and supply you with one of our catalogs.

Remember our business is the manufacture of Trucks for Factory and Warehouse use.

THE W. S. MAHAFFY CO.

MANUFACTURERS

10-16 PLYMOUTH AVE., TORONTO, ONT. (After June 1st, 1918—NO. 2 TRAFALGAR AVE.)

Since It Represents You
—your Firm, your Goods

That New Catalogue ought to be worthy, ought to be "right."

We have handled and are handling now the catalogues of a number of Canada's best and largest houses. With the experience these give and with the best-equipped Printing and Binding Plant in Canada we can offer you unsurpassed service. A fund of new ideas is at your disposal. Ask us.

Other printing too — — all kinds.

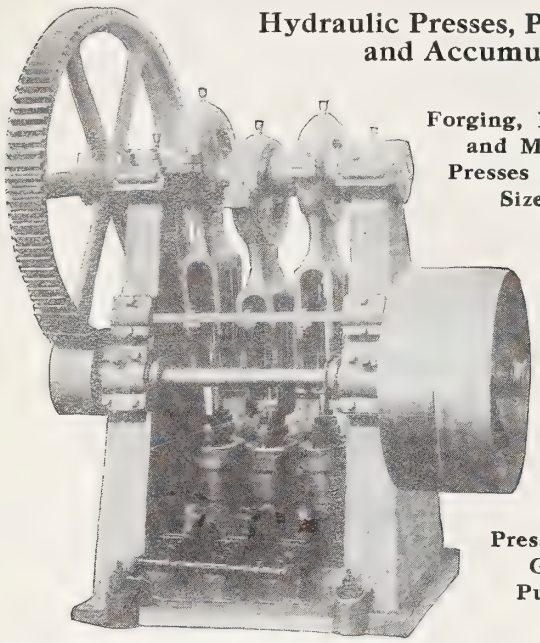
THE METHODIST BOOK AND PUBLISHING HOUSE

QUEEN AND JOHN STREETS, TORONTO

PRESSES

Made in Canada

Hydraulic Presses, Pumps and Accumulators



Forging, Nosing and Marking Presses for all Size Shells

Presses for General Purposes

WILLIAM R. PERRIN, Limited
Toronto, Canada

Electro GALVANIZING

Work handled promptly and at reasonable prices.

Send samples and specifications.

Guaranteed to stand Government Test.

THE PEDLAR PEOPLE
Established 1861 Limited

Executive Offices and Factories:
OSHAWA, ONT.

Branches:
Montreal, Ottawa, Toronto, London, Winnipeg
Vancouver

Brantford.

The City Council have granted a fixed assessment of $34,000 to the Steel Co. of Canada on condition that they erect a $100,000 addition to their local plant here, to employ fifty additional hands.

The Kitchen Overall and Shirt Co. are making alterations to their heating plant to cost $8,000.

The Dominion Steel Products, Limited, are building an extension to plant to cost $132,000.

Brockville.

A plant for making condensed milk is being installed by the Laing Produce & Cold Storage Co.

Cayuga.

Contract has been let in connection with $10,000 sand plant for the Oneida Lime Co., Limited.

Deseronto.

The foundations are in for an addition to the factory of the Dominion Match Co., Limited, Main Street.

Dundas.

To meet the demands of their rapidly increasing business, the John Bertram & Sons Co., have found it necessary to extend their plant, and have let the contract for a new wing, to cost about $150,000. The new building will be of brick and steel, and will be on the site of the old pattern and wood-working shop, which has been moved.

Essex.

Plans are being prepared for an addition to the Essex Tractor Company's factory, which will double its capacity. The new addition is for assembling and painting the tractors. Work will be commenced at once upon the addition, to have it ready for use during the winter.

Fort William.

The property of the Conley Frog and Switch Works, situated in Port Arthur, adjoining the northern boundary of Fort William, has been purchased by the Terminal Land Co. A factory was under construction on the property by the Conley Co. before the war, but was never brought to completion. It is stated that the plant will be equipped and operated.

Galt.

The Canada Machinery Corporation will erect a steel and brick extension to their plant on Water Street South. In view of the present high cost of structural steel and the difficulty of obtaining such material, the company are utilizing the building owned by them in Hamilton, and this structure is being dismantled and erected in Galt. This extension will give the company about 24,000 square feet additional floor space, and will give employment to one hundred additional workmen.

Hamilton.

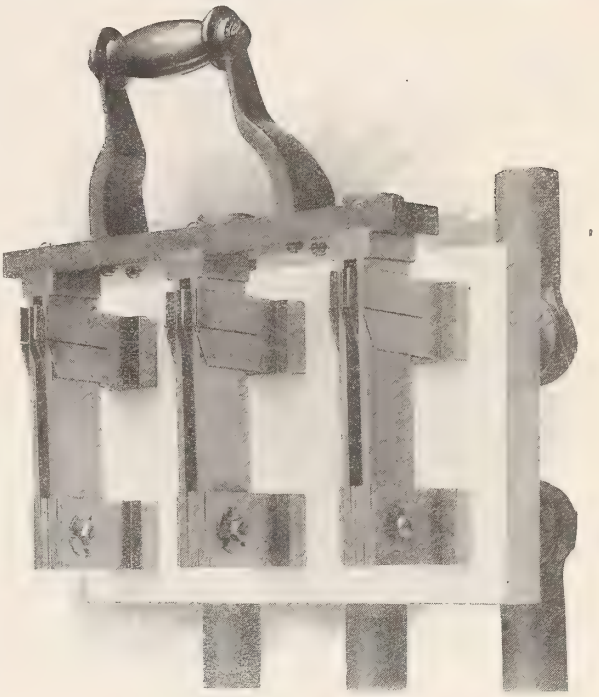
The Hamilton Bridge Works Co., Limited, Bay Street North, will erect a $20,000 one-story factory addition to carry out the steel work.

The Frost Wire Fence Co. are building a $25,000 one-story brick factory addition.

The erection of a factory on Sherman Avenue is being contemplated by the Robert H. Hassler, Limited, head office, Indianapolis, Ind.

The Canadian Shovel & Tool Co. have awarded contract for a $25,000 addition to their factory.

Benjamin "All Copper" Made-in-Canada Knife Switches



Benjamin "All Copper" Knife Switches are built in accordance with the underwriters' latest rulings and recommendations.

Great care is exercised in their construction and the materials used are of highest quality.

The current-carrying parts are made from pure hard drawn copper, and the slate is especially selected for our use.

The fibre used is selected with great care, and is especially treated before being made into cross-bars, and other insulating parts.

Our switches are so built that they will easily carry a heavy overload, and much attention is given to the details of construction of jaws and hinges, so that arcing will be at a minimum, and the make and break as nearly perfect as possible.

All the elements of switch construction have expert attention, and the workmanship is high class in every respect, insuring for our products long life and great carrying capacity.

We are in position to furnish all kinds and types of special switches for service boxes, switch board and other work.

"MADE-IN-CANADA"
ELECTRIC LIGHTING SPECIALTIES

Including Plug Clusters, Attachment Plugs, Sockets, Shades, Etc.

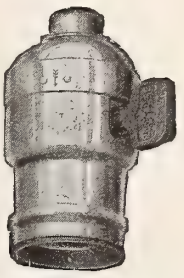
Benjamin

"92" Two-Way Plug



The easiest, quickest and best way to obtain two outlets from one socket. No extra wiring, or great expense. Just simply screws into the socket, like a lamp. Also supplied for 3 and 4 outlets.

Benjamin Sockets

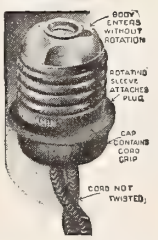


Standard Brass-Shell Sockets as shown in the accompanying illustration are one of our specialties. Full line includes Twin Sockets, Mogul Base Sockets and "Benco" highly-insulated, high-duty sockets.

Benjamin Reflectors



Are scientifically designed to give the best results in illumination, and special attention is also given to the quality and finish to ensure durability.



Benjamin Swivel Attachment Plugs

An ingeniously devised swivel shell makes it possible to affix or remove the plug quickly without twisting the cord.

The Benjamin Electric Mfg. Co. of Canada, Limited

11-17 Charlotte Street, Toronto

When you are in need of

STRUCTURAL STEEL

and

STEEL PLATE WORK

of any description

REMEMBER

We have one of the best equipped plants in Canada for handling this class of work.

Please send us your enquiries.

They will receive careful and prompt attention.

MacKinnon, Holmes & Co. Limited

MacKinnon Steel Co. Limited

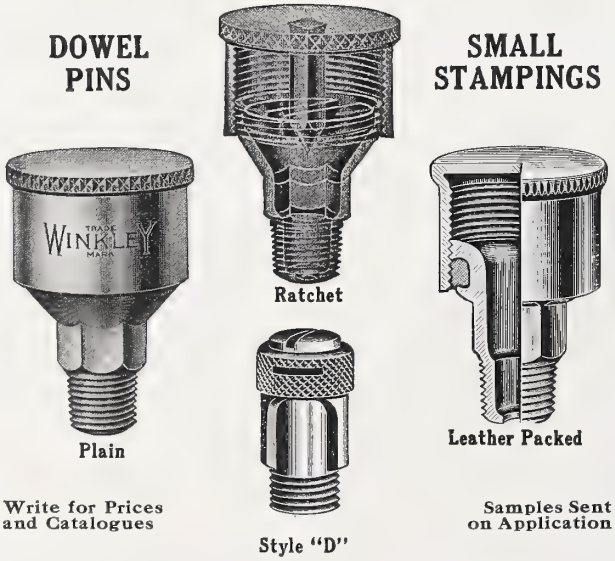
ENGINEERS, CONTRACTORS, MANUFACTURERS

SHERBROOKE, QUEBEC

PRESSED STEEL AND BRASS GREASE CUPS OIL HOLE COVERS, OIL CUPS

DOWEL PINS

SMALL STAMPINGS



Write for Prices and Catalogues

Samples Sent on Application

THE CANADIAN WINKLEY CO. LIMITED

WINDSOR, ONTARIO

Hespeler.

The washing machine and truck departments of the London Foundry Co., Limited, are being moved to Hespeler, Ont., where it is stated these lines will be manufactured on a much larger scale than in the past.

Kapuskasing.

Messrs. Munday & Stewart, 84 King Street East, Toronto, contemplate the erection of a $1,000,000 pulp and paper plant.

Lindsay.

The town is looking forward to the establishing of a new industry here. Mr. H. E. Hunt, of Chicago, Ill., has been looking over the ground with a view to erecting a Canadian factory for the manufacture of a special brand of leather for use in automobiles, upholstering, etc.

Contract has been awarded for a $100,000 factory for Allen & Hanbury's Co. of Canada, Limited, 54 Gerrard Street East, Toronto.

Orillia.

The International Molybdenum Co., now located at Orillia, Ont., will shortly transfer their furnaces to Renfrew, where they will use a large block of power obtained from the Calabogie Light & Power Company's development.

Oshawa.

A company are contemplating the erection of a shoe factory here. Council are considering the loan of between $30,000 and $35,000 to finance the work.

Owen Sound.

A rather difficult and unusual piece of work has been carried out by Messrs. Green & Woolrich at the factory of William Kennedy & Sons, Ltd., on Eleventh Street West, Owen Sound, Ont. In order to provide for the extension of the electric crane from the steel plant through to the machine shop it was necessary to remove all interior supports for the roof, as well as raise the roof of the machine shop. This involved the jacking up of the roof to the required position and the building of trusses about six feet high on the stone sidewalls.

Paris.

The Alabastine Co., whose factory was gutted in a recent fire, contemplate rebuilding. Approximate cost, $35,000.

The Roelofson Elevator Works, Galt, have the contract for elevator equipment for manufacturing plant for the Alabastine Co., Limited, Paris.

Pembroke.

The Colonial Lumber Company's mill recently destroyed by fire will be rebuilt at a cost of $75,000.

Port Arthur.

The Port Arthur Pulp & Paper Co. will be ready to commence active operations in about six weeks' time, according to General Manager A. G. Pounsford. There are about 2,500 cords of wood on hand and 70,000 cords have been contracted for.

RIDOUT & MAYBEE

Solicitors of Patents

Counsel, Solicitors and Experts in

PATENT SUITS

Agencies in the leading countries of the World.

EDWARD MAYBEE, Mech. Eng. J. F. EDGAR, Counsel.

59 YONGE STREET, TORONTO

UNION BANK
OF CANADA

Established 1865

HEAD OFFICE, WINNIPEG

Paid-up Capital	-	-	-	$5,000,000
Reserve Fund	-	-	-	3,400,000
Total Assets, over	-	-	-	140,000,000

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Hon. President—SIR WILLIAM PRICE President—JOHN GALT, Esq.



Head Office, Winnipeg

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Attention is particularly drawn to the advantages offered by the Foreign Exchange Department of our London (England) Office, and Merchants and Manufacturers are invited to avail themselves of the Commercial Information Bureau established at that Branch, and also at our New York agency, 49 Wall Street, New York City.

To Merchants, Manufacturers and Business Men Generally

The Union Bank of Canada offers every form of service which a progressive bank can render—a service much more complete and valuable because of the network of over 308 Branches in Canada, extending from Halifax to Prince Rupert, over 200 of which are in Western Canada.

Correspondents in all cities of importance throughout Canada, the United States, the Continent of Europe, and the British Colonies. Collections made in all parts of the Dominion, and returns promptly remitted at lowest rates of exchange.

CORRESPONDENCE SOLICITED

St. Thomas.

General contract has been awarded in connection with $10,000 plant and stock pens for the St. Thomas Packing Co.

The Carnation Milk Company will made additions to its milk condensing plant. Approximate cost, $100,000.

Sarnia.

Plans for the erection of a plant for the Homes Foundry Co. to cost approximately $100,000 are in course of preparation.

Sault Ste. Marie.

The Algoma Steel Co. has now under construction some 30 new coke ovens instead of the 25 which they originally planned to build. These, together with the 110 ovens now in operation, will bring the total up to 140 coke ovens. The company has recently completed its tenth open hearth steel furnace, thus increasing its capacity to 50,000 steel ingots a month.

Strathroy.

The Dominion Canners are preparing plans for one of the finest canneries in Ontario, to replace the plant destroyed by fire early in the year. The new building will be two stories in height, and will cost about $100,000. Work on it is not expected to start until spring. The plant will be equipped with the most modern machinery obtainable.

Thorold.

A $500,000 addition to the plant of the Exton Co. is contemplated.

Toronto.

The International Time Recording Co. of Montreal and the Computing Scale Co. of Toronto have been merged into the International Business Machine Co., Limited, head office Dundas Street, and a new plant will be erected shortly.

Permit has been granted to the Canadian Aeroplanes, Ltd., Dufferin, Street, to enlarge their premises at a cost of $27,000.

Permission has been granted by the city architect to the Toronto Type Foundry Co. to erect an addition to their present factory at a cost of $18,000.

An extension is being built to the Bawden Machine Co., on Sterling Road.

At a meeting of the bondholders of the Ontario National Brick Co. it was decided to provide means to take over the concern in liquidation in the interests of those who are willing to put in $250 new money for each $1,000 bond held.

A permit has been granted by the city architect to the B. J. Johnston Soap Co., for the erection of a reinforced concrete factory on Natalie Street. The building will be 200 feet by 82 feet, and will occupy a site 307 by 200 feet deep. The structure will be two stories high, but the foundations are put in to accommodate a six-story building. The cost of erection will be $110,000. The building will be modern in every respect, and be of a fireproof character.

The property, plant and good will of the Queen City Foundry Co., situated at the foot of Cherry Street, Ashbridge's Bay, has been purchased by the Bond Foundry & Machine Co. In the future the plant will be operated as the Bond Engineering Works, Limited. Additional new buildings will be erected to take care of the increased business.

We manufacture all kinds of **BADGES** *used in industrial establishments by employees and foremen.*



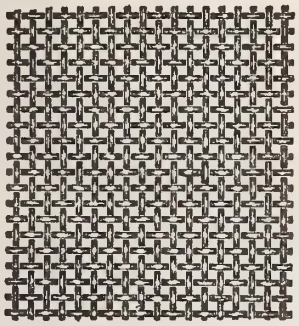
On request we submit special designs and quote prices.

These badges are generally enamelled with hard enamel in colours and are very attractive in appearance, as well as being almost indispensable where a large number of hands are employed.

CARON BROTHERS Caron Building, 233 Bleury Street **Montreal**

Canada Wire & Iron Goods Co.

HAMILTON - - CANADA



Manufacturers of **Double Crimped Wire Cloth and Wire Screening** for all purposes of Iron, Brass, Copper, Bronze, Galvanized and Tinned Wire, etc.

There is no kind of Wire Fabric required in the production of any machine or manufactured article that we cannot furnish.

We also manufacture:—

Bank and Office Grilles and Ornamental Iron Work in all finishes.

Wire Guards for Factory Windows, Moulders' Riddles, Laboratory Testing Sieves, Steel Factory Stools and Metal Lockers.

Send for Catalogue — Enquiries Solicited



Men forget business cares in the enjoyment of

Gourlay-Angelus
Player-Pianos



A GOURLAY-ANGELUS provides ANYONE with the ability to play ANY music artistically.

In the opportunity for recreation thus afforded, many busy men find enjoyment hitherto undreamed of, as well as a complete rest from the business worries and cares of the day. If you find it hard to leave these cares behind you when you go home, depend upon it, a Gourlay-Angelus will make you forget them.

One Toronto manufacturer tells of this pleasure in a Gourlay-Angelus as follows:—"I have always been glad I purchased the Gourlay-Angelus. The longer I have it the more I enjoy it and the more I use it."

Write for Catalogue and Prices

GOURLAY, WINTER & LEEMING,
188 Yonge St., Toronto

A $22,000 steel and galvanized iron storehouse is being erected by Cluff Ammunition Co., 27 Atlantic Avenue.

Work is starting on the foundations for the main buildings of the shipbuilding plant for the Dominion Shipbuilding Co., at the foot of Spadina Avenue, Toronto. The construction will be carried out by the staff of the Toronto Harbor Commissioners, under the supervision of Assistant Chief Engineer J. G. R. Wainwright. The foundations will be of pile and concrete construction.

The Bond Engineering Works, Limited, who have recently taken over the Queen City Foundry, contemplate making additions to the plant.

Wallaceburg.

Damage to the extent of $100,000 was done on December 11 by fire to the Wallaceburg plant of the Dominion Sugar Co. The fire followed an explosion believed caused by an explosion of gas used for reheating the dryers in the pulp building. The blaze completely destroyed the building and machinery and 7,000 bags of pulp.

Watford.

The Andrews Wire Co. contemplate the erection of a factory extension.

QUEBEC.

Drummondville

The plant of the Aetna Explosives Co. is again being operated after being closed down for some months. The acid departments are being operated at capacity to manufacture sulphuric and nitric acids, and the output is at the rate of 3,000 tons monthly.

Maisonneuve.

The Canadian Machine Co., offices Nashua, N.H., and Boston, Mass., contemplate the erection of a factory and have approached the City Council to guarantee $250,000 of their debentures.

Montreal.

The building of a large cement plant, to cost $100,000, is being planned by the Dominion Cement Co., 92 Notre Dame Street East.

Extension will be made to the A. R. Whittall Can Co. at a cost of $25,000.

An influential syndicate has been formed to finance and operate a new glass company in a suburb of Montreal, called St. Pierre, to be known as the Consumers' Glass Co., and to work in opposition to the Dominion Glass Co., which has several plants throughout the country, including factories at Toronto, Hamilton and Wallaceburg. The new company is taking over the plant of a company formerly called the Premier Glass Co., which previously had taken over the plant of the Atlas Glass Co., and both of which proved failures.

Pointe-aux-Trembles.

Plans are being prepared for a $22,000 shoe factory for the Omer Chevrefils, care of Lion Brand Shoe Co., 15 Gosford Street.

Three Rivers.

The Canada Steamship Co. are considering the erection of 800 concrete bungalows to accommodate the laborers who will work at the Cape de la Madeleine shipyard of their subsidiary concern, the Tidewater Shipbuilding Co. Jules Balcer, proprietor of Houliston Park, near the Wabassa Cotton Mills, has been approached with an offer for his property as a site for the huts.

Canada Foundries & Forgings Limited

Original Producers and Distributors of

BLACKSMITHS' SLEDGES

SOLID CAST STEEL



No. 37. Cross Pein. $10.25

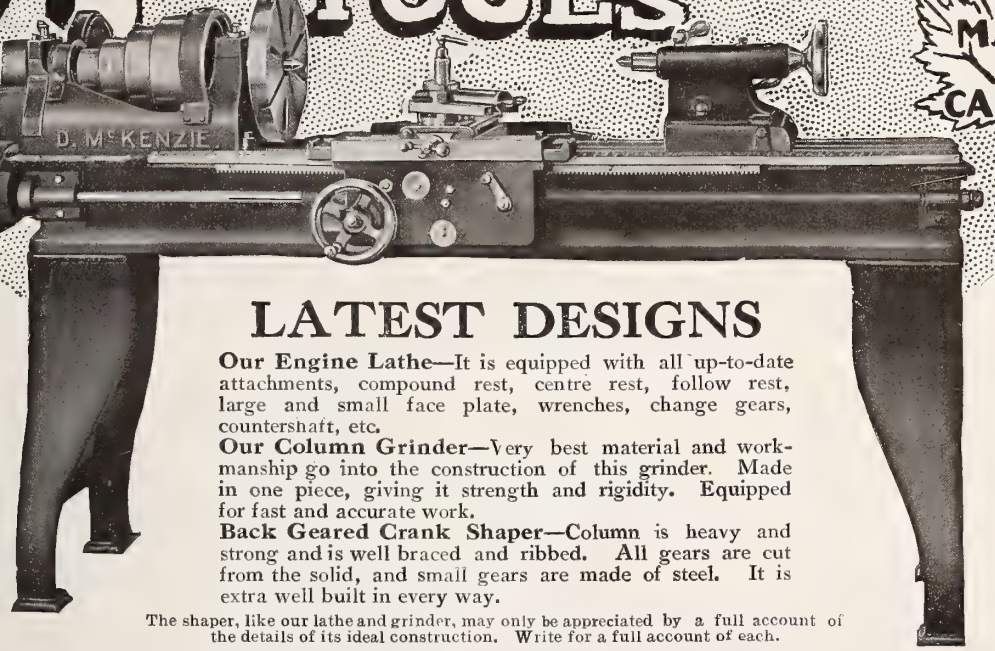
Nail, Tinners', Farriers', Riveting, Machinists' Hammers and Sledges, also Axes and Wedges of all descriptions.

Produced at *Write for Catalogues and Prices*

THE JAMES SMART PLANT - Brockville

McKENZIE TOOLS

MADE IN CANADA



Engine Lathe

14-inch x 6-feet

LATEST DESIGNS

Our Engine Lathe—It is equipped with all up-to-date attachments, compound rest, centre rest, follow rest, large and small face plate, wrenches, change gears, countershaft, etc.

Our Column Grinder—Very best material and workmanship go into the construction of this grinder. Made in one piece, giving it strength and rigidity. Equipped for fast and accurate work.

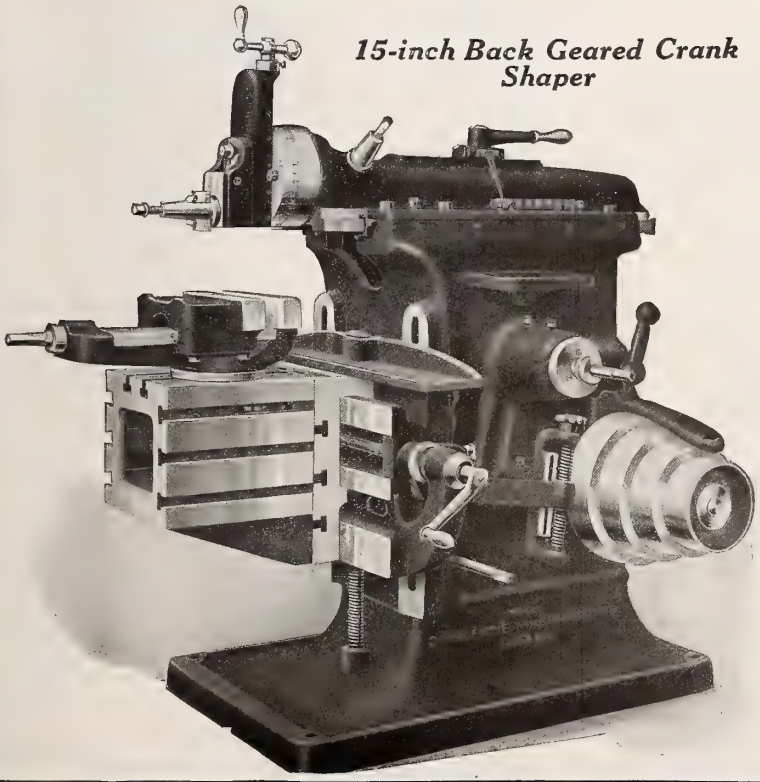
Back Geared Crank Shaper—Column is heavy and strong and is well braced and ribbed. All gears are cut from the solid, and small gears are made of steel. It is extra well built in every way.

The shaper, like our lathe and grinder, may only be appreciated by a full account of the details of its ideal construction. Write for a full account of each.

THE D. McKENZIE MACHINERY CO.

GUELPH, ONT.

15-inch Back Geared Crank Shaper





No. 2 Column Grinder

PETERBOROUGH
ONTARIO, CANADA

The Manufacturer in Peterborough has many advantages. He connects directly with the G.T.R. and C.P.R., and by canal with all principal Waterways. He has abundant cheap electricity. He draws for his labor from a population of 24,000 industrious, home-loving people. Peterborough is the town worth living in, having all City advantages with fine country surrounding, excellent educational facilities and very moderate living expense.

FINEST LOCATION IN CANADA FOR MANUFACTURERS

Hydro-Electric power is developed on the Otonabee River, and connecting Waters, by a system owned by the City, and rates are low. Peterborough has been notably free from labor troubles, and our Manufacturers have had no trouble in procuring labor of all classes. Labor costs less than in the larger Cities.

CENTRE OF POPULATION EXCELLENT TRANSPORTATION FACILITIES

If Transportation charges are an important part of your manufacturing problem, Peterborough will interest you. It has direct railway connection with all big Centres, being situated between Montreal and Toronto.

There are over 60 factories, the largest employing about 2,000 hands. It is the civic policy to encourage manufacturers, and the city is reserving for new comers a number of very desirable manufacturing sites. For further particulars, write, wire or telephone—

THE CITY CLERK, Peterborough, Ontario, Canada

La Compagnie Desjardins

St. Andre de Kamouraska - P. Quebec

GREY AND MALLEABLE
IRON FOUNDERS

THRESHING MACHINES

GASOLINE ENGINES

Correspondence Solicited

WATER POWERS OF CANADA.

Latest Official Estimate Places Total Possible Horse Power at Nearly Nineteen Millions.

With coal at a high price and the prospect that we shall soon have to depend largely on our water powers for heating our houses and running our railways, a reliable estimate of what our water-power resources are is of great value, says the Commission of Conservation. The first estimate of this kind was published in 1911 by the Commission. Since then it has conducted water-power surveys of British Columbia, Alberta, Saskatchewan and Manitoba, and has secured additional data on the powers in other provinces. It now submits the figures below as being the latest available:—

Province.	*Total possible h.p.	Developed h.p.
Ontario	5,800,000	760,000
Quebec	6,000,000	640,000
Nova Scotia	100,000	26,000
New Brunswick	300,000	15,000
Prince Edward Island	3,000	500
Manitoba		76,000
Saskatchewan	3,500,000	10
Alberta		33,00
Northwest Territories		Nil.
British Columbia	3,000,000	250,000
Yukon	100,000	12,700
Total for Canada	18,803,000	1,813,210

* The figures in this column are given with much reserve, since it is practically impossible to arrive at exact amounts for any country. In addition to detailed surveys and flow records, such factors as artificial storage, economic head to be developed and kind of industry to be established all vary the estimates for each individual site.

JAPAN LISTS SHIPBUILDING YARDS.

Department of Communications Gives Estimate of World's Facilities in Shipbuilding.

The world has 264 shipbuilding yards capable of turning out ships of 1,000 tons, and 416 other yards capable of turning out ships of more than 100 tons but less than 1,000 tons, according to a recent investigation by the shipping bureau of the Department of Communications of Japan. The distribution of these shipyards is as follows:—

Nation.	Yards capacity more than 1,000 tons.	Yards capacity more than 100 tons.	Total.
England	92	144	236
British Colonies	2	49	58
Holland	35	70	105
America	33	15	48
Germany	23	28	51
Japan	14	11	25
Italy	9	9	18
Austria-Hungry	5	4	9
Spain	3	11	14
Belgium	2	5	7
France	14	11	25
Norway	11	13	24
Sweden	5	12	17
Denmark	5	4	9
Russia	2	15	17
China	2	3	5
Other nations	..	12	12
Grand total	264	416	680

CANADIAN COLLAPSIBLE TUBE CO., Limited
MANUFACTURERS OF
"Premier" Pure Tin, Plain and Decorated Collapsible Tubes
381 ADELAIDE ST. WEST - - - TORONTO

STEEL BARS

ROUNDS, SQUARES, FLATS, ANGLES AND SPECIAL SECTIONS FOR AGRICULTURAL IMPLEMENTS

Prompt Shipment from Stock

BURLINGTON STEEL CO., Ltd.

HAMILTON - CANADA

"PERFECT" "MASSEY" "RED BIRD" "CLEVELAND" and other

C.C.M. Bicycles are made right here in Canada

by Canadian workmen—not merely *assembled* here from foreign-made frames and parts. They are easy-running, graceful, strong and durable—by far the best value for the money.



An inexpensive shelter like this will accommodate many bicycles. Cycling helps employees to be punctual. And the fresh-air exercise brings a glow of health that makes work a pleasure.

EXPORTERS OF

Reed Organs, Piano Stools,
Music Cabinets.

Catalogue B.

The Goderich Organ Co. Limited
GODERICH, CANADA

Closet Seats,
Flush Tanks,
Medicine Cabinets,
Everything for the Bathroom.

Write for Catalogue C and Price List.

Chemical Fire Engines

For Factory–Village–City. Capacities 20, 40, 50, 70 Gal.

OUR "JUNIOR" 40 GAL. ENGINE WITH MANY IMPROVEMENTS OVER THE ORDINARY TYPE, SELLS AT $150.00

The R. S. BICKLE COMPANY

WINNIPEG MONTREAL QUEBEC ADDRESS ENQUIRIES TO HEAD OFFICE, WOODSTOCK

JOHNS-MANVILLE
Asbestos
Resistant to heat, water, wear and weather
JOHNS-MANVILLE SERVICE COVERS THE CONTINENT
Insulations Packings Steam Traps
Roofings and Building Materials
Electrical Products Household Specialties
THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.
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When you think of Asbestos you think of Johns-Manville

MADE IN
PREMIER
CANADA
GALVANIZED SHEETS
"If you will need any galvanized sheets during the next six months, take our advice and order now."
The Dominion Sheet Metal Co.
Limited
Hamilton Ontario


HIGH-CLASS
MADE-IN-CANADA
AIR
COMPRESSORS
Send us your inquiries
HAMILTON MOTOR WORKS, LIMITED
HAMILTON CANADA

New Zealand and Canada

Statistics Showing Trade Development Between the Two Countries Over a Period of Years

Our trade interchange with Canada during 1916, states the New Zealand *Trade Review*, compares, according to official records, with recent previous returns as follows:—

	1916.	1915.	1914.	1913.
Exports	£691,986	£925,823	£595,611	£606,662
Imports	761,105	795,617	455,468	452,519
Excess of Exports	*£69,119	£130,206	£140,143	£154,144

* Excess of Imports.

The latest year shows decrease in both imports and exports, and the balance of trade is against us for the year.

The following tables give full details of the trade both ways:—

Exports from New Zealand to Canada during the years 1916, 1915, 1914 and 1913 respectively:—

	1916. £	1915. £	1914. £	1913. £
Butter	25,186	114,266	291,849	320,136
Meat—Frozen	....	477	13,927	63,110
Preserved	....	....	277	843
Wool	188,210	194,143	48,548	45,761
Sheepskins	75,650	52,233	31,994	33,294
Calfskins	35,162	46,708	30,018	29,081
Hides	227,377	279,535	151,040	93,452
Pelts	25,647	12,251	7,666	4,022
Sausage Casings	21,690	4,647	370	225
Kauri Gum	14,591	4,550	2,114	4,618
Hemp	61,925	5,635	4,677	1,070
Onions	2,289	1,200	2,312	1,439
Miscellaneous	14,259	*210,178	10,819	9,611
Total	691,986	925,823	595,611	606,662

* Includes specie £200,000.

Imports into New Zealand from Canada during the years 1916, 1915, 1914 and 1913 respectively:—

	1916. £	1915. £	1914. £	1913. £
Apparel and Slops	15,473	8,346	5,178	11,289
Boots and Shoes	6,166	4,846	5,397	4,936
Gum Boots	1,794	1,799	2,402	4,349
Bicycles and Materials	52	942	31	77
Canvas	466	806	173	193
Carriages and Materials	2,542	4,194	10,103	2,583
Motors and Materials	208,202	148,254	100,886	114,462
Cotton Piece Goods	2,084	1,037	397	46
Corsets	11,406	4,595	4,030	....
Drugs, Chemicals, etc.	7,318	7,020	4,634	955
Fish, preserved, etc.	43,812	40,970	37,198	34,176
Fruit, Apples	11,963	8,911	6,875	15,032
Furniture	5,013	6,683	4,396	9,509
Glass and Glassware	2,095	1,728	2,050	6,789
Grain, Wheat, etc.	86	139,153	3	297
Flour	2,223	31,539	359	30
Hardware	6,115	2,880	3,632	4,188
Instruments: Musical	3,489	1,839	1,564	1,365
Iron Pipes and Fittings	51,507	81,390	20,121	23,949
Bar, Bolt, Rod	56,704	16,787	....	....
Fencing Wire	32,625	3,635	18,610	4,017
Leather	19,035	20,133	5,680	7,869
Machinery: Agricultural	27,911	25,232	40,754	44,554
Other	7,527	2,448	3,722	4,245
Metal Manufactures	23,261	9,083	4,980	5,352
Nails	49,517	13,598	4,634	291
Paper: Printing	119,294	150,004	125,714	103,606
Other	20,475	19,232	10,289	6,923
Sausage Casings	....	2,345	632	1,077
Seed, Grass	6,663	11,637	6,990	8,021
Timber	575	1,648	4,476	5,873
Tools and Implements	2,518	1,387	1,620	2,349
Woodenware	4,635	2,424	3,067	3,386
Miscellaneous	8,559	9,092	14,871	20,831
Total	761,105	795,617	455,468	452,519

MADE IN CANADA

Taylor & Pringle Co.
Limited
OWEN SOUND, ONT.

Manufacturers of

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QUEEN QUALITY PICKLES
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TAYLOR & PRINGLE'S PRODUCTS ARE GOOD PRODUCTS

C. O. Clark & Bro.
1510 ST. PATRICK STREET
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Manufacturers
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Sleigh Bells
Hand Bells
Trip Gongs
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Padlocks

and other small stamped goods
of brass and steel.

Stuart Brothers
NIAGARA FALLS, CANADA

DISTILLERS and
MANUFACTURERS

Essential Oils,
Concentrated Essences,
Fruit Ethers,
Synthetic Perfume Oils,
Fruit Oils, etc.

TERPENELESS OIL OF JAMAICA GINGER

Contains all the desirable properties of finest Jamaica Ginger and is more soluble than any other true Ginger preparation of equal strength.

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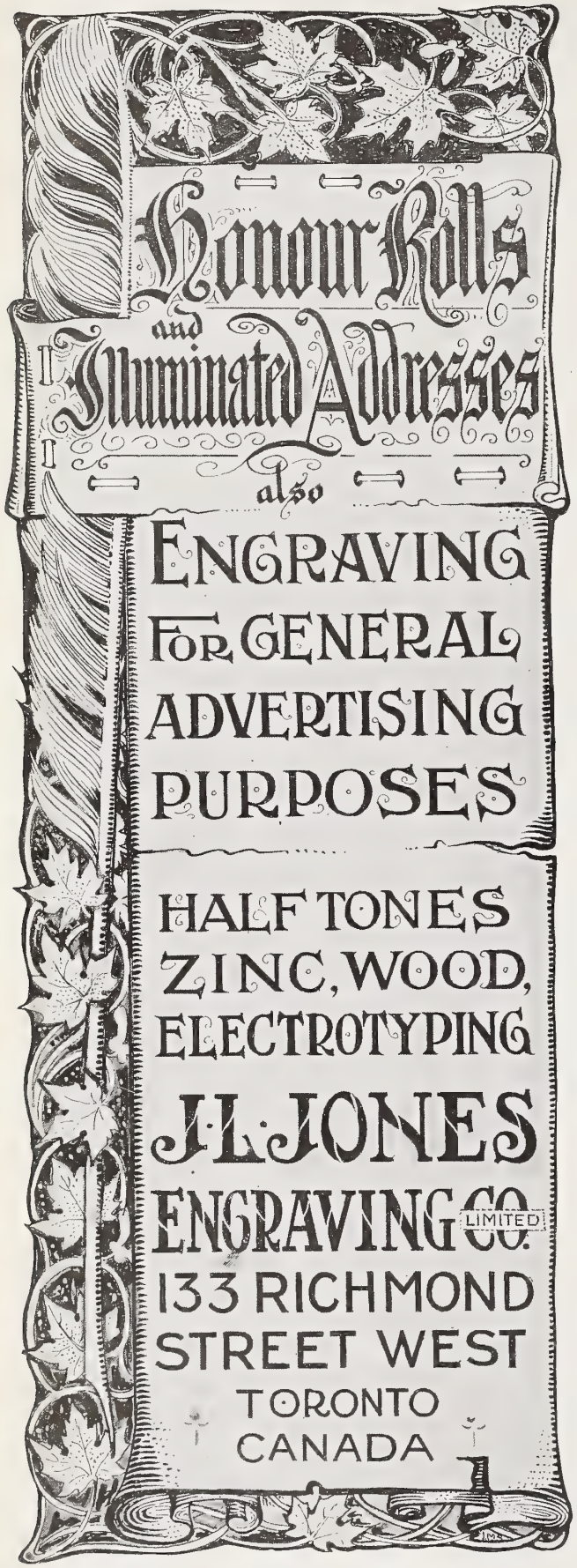
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A Japanese Point of View

Complaints Being Made Regarding the Treatment of Japan in a Business Way by the Allies

The *Asahi*, a vernacular paper published in Tokyo and in opposition to Premier Terauchi, in a recent issue complained of America's treatment of Japan at the present time, and also spoke of the difficulties in connection with India trade accounts. The editor lists five points regarding America's attitude which he cannot understand.

First. While America is anxious to increase the supply of bottoms for the Entente Powers in order to prosecute the war against Germany effectively, she is making Japan stop her shipbuilding, though Japan has the capacity of building 600,000 tons of shipping annually.

Second. America, by the gold ban and other prohibitions of exportation, is making the difference between the exports and imports with Japan greater than ever.

Third. According to the explanation of the Terauchi Ministry regarding the supplying of arms to China, one of the reasons for the undertaking is that Japan wants to forestall America from doing the same. Then America, while busy with her work of supplying arms to Europe, thereby even neglecting Japan's trade, is trying to capture China's trade in arms.

Fourth. America has advised the Tuan Ministry to compromise with the South. But now she wants to sell arms to the Tuan Ministry, thereby giving the Tuan Ministry assistance in beating down the South.

Fifth. America gave a royal reception to Viscount Ishii. Yet in the meantime she imposed the steel ban and the gold ban. She now intends to prohibit the importation of raw silk, tea and silk fabrics.

As regards the trade with Europe, the editor says that the European powers as well as America are prohibiting the exportation of gold, so Japan cannot get her payments for any sale she may make to Europe. Now comes America, with whom Japan does business to the extent that her exports exceed imports by 140,000,000 yen or more, and the excess is increasing this year. America will not pay in gold to settle the accounts. As for India, she will not sell, except on cash payment.

Under the circumstances, the Japanese Government authorities are very much vexed. To this difficulty Japan adds by spending so much money for keeping her fleet of warships in the Mediterranean Sea. The authorities are advising Japanese cotton manufacturers to buy American cotton instead of Indian cotton, in order to assist in equalizing export and import accounts with America. But it is well nigh an impossibility for the cotton manufacturers to use high-priced American cotton in place of low-priced Indian cotton.

The editor suggests a plan of settling the American accounts, namely, by buying American bonds for short terms, say one year. Some minor difficulties in regard to that proposition should be endured, the editor advises.

As for the Indian trade, the editor suggests that bonds be issued in India to make settlements of accounts with that country. England, an ally of Japan, may not refuse to grant that much convenience. If that is not possible, Japan may have to economize her payments to India. She is paying tens of millions to be spent in the Mediterranean Sea districts, on behalf of her fleet. This payment may be stopped by withdrawing the fleet from the Mediterranean Sea. But that will be the very last thing to do.—*Bulletin of the Japan Society.*



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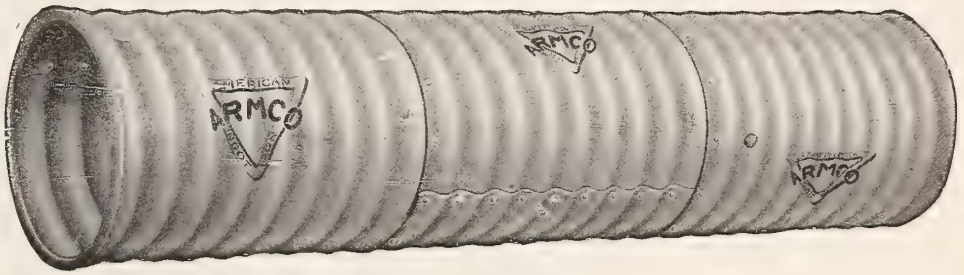
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The Procuring of Government Contracts

Purging Government Offices of Everything which Acts as a Barrier to Efficiency is the Highest Patriotic Duty, and on that Alone a Decision May Depend

(Reprinted from the "Michigan Manufacturer")

(*The following article is reprinted in* INDUSTRIAL CANADA *by special request. It is written for the special benefit of United States manufacturers, but there are points of common interest in it which will be appreciated by manufacturers on this side of the line.*—EDITOR.)

THERE is nothing in the great task which the United States set itself when it entered the struggle for democracy which will play a more important part in deciding who is to be the ultimate victor than the development of a national system which will make for the prompt and adequate supplying of our armies and fleets with the materials necessary to maintain our fighting forces adequately.

The nation has set itself the task of preparing for a long war, one in which millions of men will be called to the colors and which will require for its efficient prosecution supplies of every variety in hitherto undreamed-of quantities.

An organization in the various departments still imperfect and inadequate is trying to supply this volume of material. Considering facilities, the record which the Government has made in getting cantonments constructed, in transporting thousands of men safely overseas, in procuring uniforms and getting plants at work on munitions, ordnance, airplanes, rifles, has been remarkable. But there is still much to be done, and of the programme before the country the greatest problem will be the co-ordination of all factors connected with the production of war materials, the simplifying of the machinery in the several departments and the removal of certain features connected with the awarding of contracts which have resulted in the making of some ugly statements.

Purging the Government offices of everything which acts as a barrier to efficiency is the highest patriotic duty, and on that alone a decision may depend. The United States does not want to duplicate the fate of the Russian arms, the collapse of which was directly traced to inefficiency and corruption at the very place where the war administration should have been unassailable.

Reaching Proper Bureaus Important.

It is the purpose of this article to tell manufacturers who desire to apply part or all of their plant to Government needs, something of the organization which provides war material so as to eliminate some of the confusion and misunderstanding which now exist in this connection.

It is not easy to procure war work readily unless the proper channels are reached directly and after that there is little trouble. The great difficulty heretofore has been in finding the right departments in Washington amid all the confusion, congestion and overtaxed facilities of the Administration.

The first caution given without reservation to every manufacturer in Michigan who is seeking war contracts is this: Under no circumstances deal with any so-called commission men or brokers who say they can get contracts because they have a "pull" in some department and who, for a consideration of five per cent. or some other amount, guarantee contracts or raw materials. Every manufacturer with facilities that the Government can use can get plenty of work legitimately and save himself from the results of dealing with profiteers who are growing rich by mulcting potential war industries. More will be said on this subject farther on.

An industrial inventory is sought of every manufacturer who desires to bid on war contracts. This inventory is complete to the last detail and is guarded with the utmost secrecy. It has eight subdivisions, business and administrative, plant, manufacture and production, labor, transportation, possible future arrangements, inventory and field notes. Particular information is required concerning the personnel of managements as a protection against enemies. The names of officials, stockholders and directors, foreign representatives and financial connections must be specified.

Features of Inventory.

Under the second section which deals with the plant, data is asked on plant surroundings, floor plans, insurance, rate, whether or not stories can be added, fire protection, heat and light developed, water supply, power capacity, elevators and facilities for feeding employees. Even such details are asked about as pneumatic tubes, housing, lockers for employees, telephone and telegraph equipment.

Under the head of manufacture and production, executives are asked when slack seasons occur, what proportion of machinery is idle at such times, whether there is a planning or routing department in the factory, to what limits of precision in machine work factories operate, principal materials used and where purchased, principal products manufactured and how they are marketed and distributed.

Every detail in connection with employment and labor supply is also requested and the inventory then proceeds to transportation. Information is sought on how materials reach the railroad or boat lines, what sort of pavements must be traversed to docks or depots *and whether the latter have crane capacity.*

The inventory then asks the following questions about future arrangements:

Would you consider bidding upon regular army and navy contracts in time of peace?

Would you consider accepting army and navy business in time of war on a *cost plus reasonable profit basis?*

Would you consider accepting "minimum annual educational" order?

Do you favor enrolling skilled labor in an "industrial reserve?"

This industrial inventory forms the basis on which the Government deals with manufacturers. It gives the army and navy specialists all the data they require for transactions in war supplies.

With such an inventory on file in each department which might buy the products that anyone can manufacture, there is no need for the employment of go-betweens whose only idea is to share in possible profits without contributing anything to output.

After this inventory has been filled out and filed, the manufacturer is listed with the proper bureaus at Washington. Notices of proposed purchases are then sent to him regularly and further printed proposals supplied on request. In this manner every possible bidder can determine for him-

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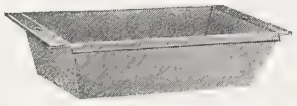
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self what business he is able to handle. Postal applications are attached to all notices and their return brings specifications promptly.

Changes in Navy's Policy.

The Navy Department has made several important changes in the manner of purchasing supplies which have worked out to the advantage of bidders. Briefly they are as follows:

It is unnecessary to execute a formal guarantee and formal contract and bond on proposals under $500.

Consignments are made direct to the supply officer at the yard at which delivery is required, consigned f. o. b. cars or wharf, and the material is then handled at the expense of the Government, unless specifically provided to the contrary.

On bids exceeding $500, guarantees are necessary. This, however, is further simplified by executing annual guarantees covering all proposals any manufacturer may submit during the fiscal year. Contractors may also file an annual contract bond with corporate surety only.

Payments are made in full for each partial delivery when the payment involved warrants such action, ten per cent. no longer being withheld from payment for each delivery.

A system has been instituted whereby payments for deliveries will be made promptly after the inspecting officer has accepted and passed the material.

Much progress has been made in the purchasing system for the Army within recent weeks. Brigadier-General William Crozier, chief of ordnance, is now issuing a revised book of instructions to bidders who desire to manufacture gun carriages, artillery vehicles and similar ordnance material. This contains many important changes made to conform to the latest requirements of the war administration.

It is required that all articles conform to Ordnance Department specifications.

The right is reserved to waive informalities and reject bids, change the numbers to be awarded or make separate awards on different items if deemed for the public interest.

A bidder not a manufacturer of the material advertised must name the maker of each article he proposes to supply when practicable.

System of Payments.

Unless otherwise stated, the system of payments will be as follows: Twenty-five per cent. of the contract price on each article upon delivery and acceptance of material, equal in value to all the material therefor, or such lesser sum as will insure the amount so paid is less the value of the material of such article; 50 per cent. or some other part of the unpaid balance upon delivery of each finished article and the balance after inspection and acceptance. After the first payment, the title to the material shall go to the Government, there to remain unless the article is rejected on inspection.

The following are some of the newest revised provisions in the awarding of ordnance contracts:

The United States reserves the right to order additional supplies up to 20 per cent. of any article contracted for at the same prices specified, or accept, with the consent of the contractor, at the same prices in full satisfaction of the contract, such lesser quantities of supplies contracted for, to a minimum of 80 per cent. of the face of the contract.

All material furnished under contract shall at all times be subject to inspection. The decision of an inspection officer shall be binding and the contractor obliged to replace rejected materials.

The chief of ordnance may make changes in drawings forming part of contracts and if such changes involve extra labor and material, a fair price shall be paid therefor.

In the event of the failure of a contractor to prosecute properly the manufacture of material or complete delivery at the stipulated dates, the chief or ordnance may proceed at the

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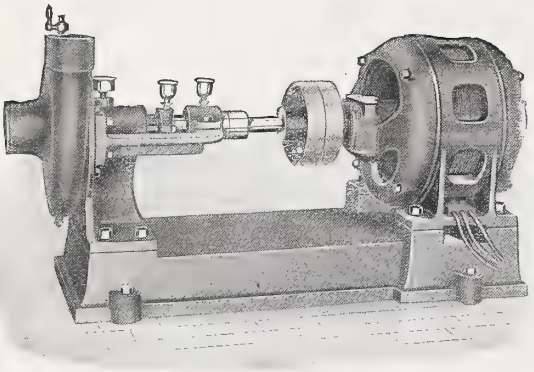
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It is a tin base metal, contains no lead.
Every pound guaranteed.

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contractor's expense to complete the manufacture or delivery of a contract in such manner as he deems best for the public service, charging excess costs to the manufacturer.

Prison Labor Prohibited.

In the event of failure to deliver contracts within the time limits specified, the Government assumes the right to levy damages against a contractor of one per cent. of the amount of the contract price for each day of delay. In addition to this, extra costs of superintendence connected with delayed contracts are also levied against the manufacturer. Liberal allowances are made, on the other hand, where delay is caused by accidents, fires, storms, strikes, etc.

Prison labor on war contracts is forbidden.

When the contractor is required to furnish articles in accordance with designs made or owned by him, he shall agree to hold and save the United States and all persons acting under them harmless from and against all liability on account of any patent rights granted by the United States, which may affect the material to be delivered. In all other cases the Government assumes responsibility for patent rights.

Neither the contract nor any interest therein shall be transferred to any other parties and in case of such transfer the Government may refuse to carry out the contract.

The Secretary of War shall have final decision in the matter of all disputes arising between the Government and a contractor whenever the latter for any reason considers himself aggrieved.

Eight-Hour Day Obligatory.

The Government requires that an eight-hour schedule be enforced on all war work. A penalty of $5 for each workman employed in violation of this restriction is imposed.

Foreigners not in the employ of a contractor are forbidden to inspect Government work of a confidential nature.

The ordnance department particularly requests that envelopes containing proposals be addressed as prescribed in advertisements as a protection against premature opening.

It can be readily seen from this data that the Government has prepared a policy based on exact needs for the purchasing of war material. Would space permit, it would be possible to publish exact specifications of many articles which can be manufactured in this community. This information is so easily available, however, from Government departments that this is not necessary.

There are four principal departments in Washington which purchase supplies in great quantities. They are the Navy and War offices, the Shipping Board and the Allies' Purchasing Commission. Up to the present time there has been established no clearing house where all these branches might learn which manufacturers over the country make any given article needed, so that a corporation can properly be listed with several different offices.

There is in all the departments, however, a definite desire to deal with the manufacturer directly, rather than with a go-between who offers to place orders on a commission basis. Aside from the loss of time and the opportunity for corruption which the commission system makes possible, there is another reason for this. It happens frequently that the Government men desire to consult with a manufacturer on highly technical matters connected with the manufacturing of some article. The commission man is never able to do this, and by the time he gets his client and the Government together, if he even goes to that trouble, it may be too late and the work will be given to someone less capable but who was on the ground.

Another often-asked question which arises in connection with war work is the matter of sub-contracts. The Government does not sub-contract where something must be manu-

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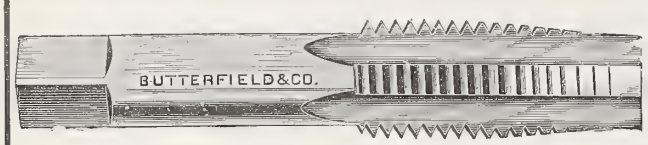


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factured which calls upon two or more varied lines of industry. Usually the work is let to some large contractor who arranges for the manufacture of such parts as he cannot make himself and thus solves the problem of assembling these parts. This saves time and lost motion.

Much has been heard and said about the building of special plants for munitions manufacture. Many men without much capital or special talent for production are to-day wondering how they can get the Government to finance the construction of a plant for them that they might produce war material. For their information it might be said that the established manufacturing capacity of the country is able to absorb great volumes of work with facilities already available, and unless a prospective war contractor can show that he has some particular genius as a manufacturer or has substantial financial resources, the chances of obtaining consideration as a potential bidder are very slim.

To return to the commission man, against whom emphatic warning has already been given. It is the highest patriotic duty of the manufacturer to protect themselves against him. Wherever an instance is discovered of one having received some special concession from the Government, which no *bona fide* business transaction could have apparently made possible, it is the duty of every business man to expose that transaction, in order that festering spots both within and without the Government departments might be purged. Greater sums than the nation ever assembled before in its history are being expended and no questions can be asked because of the nature of the expenditures. The duty of all connected with these unlimited purchases calls for the highest and most difficult kind of integrity.

Navy Attacks Brokers.

The Navy Department recently gave this matter official recognition when it sent out a warning in view of numerous complaints that agents, after obtaining bids, were taking advantage of quotations to place the contracts with competitors. All firms are invited to deal directly with the Navy bureau of supplies and accounts and not through manufacturers' agents. Bidding through third parties invariably leads to misunderstandings. The Navy is zealous in its desire to treat all fairly.

The warning states that great numbers of brokerage concerns have come into existence and many are endeavoring to bid upon Government supplies. Elimination of these brokers, it is emphatically declared, will result in the most satisfactory dealings. All contracts and bids are kept on file and inspection and full publicity, after awards are made, are assured at all times.

Some of the practices of these brokers might be enlightening. Dummy telephones and imaginary consultations with men high up in Government circles are used to impress the manufacturer. Bids for a certain contract are asked of several men and the lowest only submitted to the Government, regardless of qualities or facilities. Frequently the cost of the broker's commission, added to the legitimate cost of the contract places it just above a competitor's bid. Many brokers maintain sumptuous offices at fabulous expense with branches in large manufacturing centres and establishments for the entertainment of contractors in Washington. All these must be paid for by the contractor or the Government.

Meanwhile, the flower of our manhood might have to sacrifice itself on foreign battlefields while awaiting the pleasure of these successors to the specialists who, in less prosperous days, eked out a modest existence with shell games and bucket-shops.

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Cullen, hundreds of small plants which can manufacture parts of war contracts have been inventoried and given opportunities to bid directly or manufacture parts of larger contracts. In this way a huge amount of war work will be turned out.

Only Essential Industries Can Operate.

Mr. Cullen very recently spent several weeks in Washington. He interviewed the heads of every important department having to do with the purchasing of war materials. He is furnishing manufacturers daily with the names of the proper officials with whom to deal if you want contracts quickly. Under his direction, the Detroit Board of Commerce is acting as a great clearing house to which manufacturers and the Government alike are coming and are being placed in direct contact with each other. It is becoming more evident daily that only the essential industries will be permitted to operate, therefore it is a matter of the utmost seriousness for every manufacturer to determine what he can best make for his Government This applies not only to the period of the war, but beyond to the reconstruction days which must follow.

The service which chambers of commerce can render in this connection is the most valuable war duty within their power. These bodies can operate unselfishly and without discrimination or profit, and because of this can save much lost motion and confusion. That this fact has already been realized by Detroit business men is testified to daily by the great numbers of them calling upon Mr. Cullen for data.

There are war contracts for all who can fill them, and the need for material is pressing. The quicker manufacturers get together with their Government directly and patriotically, the quicker the problems of supplying our armies will be solved and the war will be shortened just that much. Let us avoid the mistakes which so many of our Allies made in the early months of the war and set ourselves to work in a big way for this biggest of tasks.

FEELING WAR'S ADVERSITIES.

United States' Trade Restrictions Begin to Have Their Effect on Japanese Prosperity.

Although Japan has participated in the European war since August, 1914, that country has not suffered any direct harm; on the contrary, the war has brought about unexpected prosperity. With the entry of the United States into the war, however, many import and export restrictions put in force by the Washington Government have begun to affect adversely the economic situation in Japan. The *Kokumin* believes that from now on Japan will be affected more seriously by the war. Among the conditions that will bring this situation about are the prohibition on the part of the United States of the export of iron and steel and gold and silver.—*Japan Trade Bulletin.*

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Are Our Educational Methods Wrong?

Public Schools Dominated by the University Idea and Do Not Give that Vocational Training which so Many Young People Crave*

By PROFESSOR F. H. SEXTON
Principal Nova Scotia Technical College

TECHNICAL education is that training of which the dominant motives are to prepare men and women for some useful occupation in life. Education is preparation for life, and we can call vocational education a preparation for a livelihood. Men who have developed the industries in Canada do not need to be told that industry is on a different basis to-day from what it was ten years ago. You know that in Canada we have followed the lead of the United States. We have specially organized and developed our industries so that the man who is employed now makes as much as he can earn as long as the labor cost per unit does not rise above a certain amount. The employer who has grasped the new principles of scientific management is not afraid to have his skilled men earn $6.00 or $8.00 a day, if he only produces a sufficient amount of finished work.

In a Singapore brickyard labor costs 30 or 35 cents a day. The cost of bricks is just the same per thousand of brick as in some of our American establishments, where a man receives at least two dollars a day. In China, a man working a propeller on a boat by treadmill gets ten cents a day. But such power costs about ten times as much as if it were generated by coal on an American river boat. In America a man would get $2.00 a day for the same work. In Japan women driving piles by hand get 20 cents per day, and it costs four times as much as to pay a man $4.00 to run a mechanical pile-driver in New York. Where science is applied to industry a man can make higher wages, and keep the labor cost per unit as low as in other countries where cheap labor predominates. This condition calls for greater skill and intelligence upon the part of the workmen.

The Man Who Runs the Machine.

If you invest in any labor-saving machines you have got to see that that machine is run to capacity under the skilled supervision of a man. There have been many labor-saving machines produced by the great inventive genius of our people, and production has been increased many-fold by this method. It was only within the last eighteen or twenty years that the attention of the manufacturer has been directed from the labor-saving machine to the man who runs it, and it has only lately been recognized that there was more possibility of improving the human that runs the machine than the machine itself, that is by training this man carefully to his job, by seeing that conditions of labor were right for his health, that proper amusement and living conditions were ensured to the employee. Everything that could help this man improved the work. Thus America has built up an industrial organization that can produce goods in the face of the competition of the whole world.

In order to get skilled supervision in the factories you must look to the sources from which it might be supplied. We have had to depend for a long time for supervision upon men who were trained under the old apprenticeship system, men who learned the whole of the trade. This supply is beginning to be exhausted. The apprenticeship system was let go by the board because in a factory everybody was too busy about production to teach anybody else. People did not look far enough ahead to see where the supply for shop supervision was to come from. Now we know it cannot be supplied from the skilled men trained in the old way.

Public School System Unchanged.

The public schools, however, are going on in much the same way as they did forty or fifty years ago—absolutely dominated by the university and planned to train boys for the professions. It was thought necessary for society to train only its leaders in the university, and then the rank and file could look after themselves. The university wanted to train as good leaders as might be produced, so they put up their requirements for entrance as high as possible. This made it necessary for students to strain themselves to meet the matriculation requirements of the university—this meant that the public school student was dominated during the last three or four years by the entrance examinations of the university. Only a small percentage of the people have had university education; as a matter of fact about four per cent. I would like to feel that our public school system was the great public university in the higher grades to be specially adapted to preparation, not altogether for the university, but also for a useful life in business and industry.

Not many years ago the business man insisted that the public school should train pupils for business life. In little towns and cities they did prepare young men and women for clerks and stenographers, but that is hardly a sound business training as we look at it to-day. There was an attempt to prepare some of the pupils for some definite occupation by introducing manual training into the schools twenty years ago. This was objected to by the trades' unions, who said they would train "half-baked" journeymen for the woodworking trades. Thus everything practical was left out, and it has not given the boys who went through the manual training course any real skill, even in woodworking.

Boys and girls usually leave school about the age of fourteen years. It is painfully evident among returned soldiers that only a small proportion have a good, sound ordinary education to build upon. When a boy reaches the adolescent period he wants to do something like a grown-up man—earn a little money, smoke a little, swear a little, and he leaves the public school. If the public schools gave definite occupational courses, which the boy knew and the parents knew would lead to some definite place with definite prospects for promotion, there would not be this great migration from public schools at this tender age, even though there were no compulsory education.

Must Have Vocational Training.

This is one of the great needs that must be met now in the public school system. I would emphasize the fact that we must have in public schools some kind of definite vocational training for the industries that exist in their communities. We must have some kind of vocational training for the pupils who leave the public schools and find their places in business life. It is evident enough that the school does not meet the needs of thousands of young men simply by

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the fact that they enrol by thousands in the correspondence schools, and you know that correspondence instruction, as far as education goes, is about as satisfactory as courtship by telephone.

If you want to help the boy at work who wants a training you have got to take education to his home, to the threshold of his door, where he cannot miss the opportunity. Convince him of the necessity of education, and carry it on right in the place where the boy is earning his living. Some kind of vocational training must be provided all over the country, even in the towns and small hamlets. Even when technical education is secured the work is not done. Opportunity must be provided. The great need in the present day is for a specialized technical education, for well-trained men who want to be highly skilled journeymen and supervisors, and foremen, and superintendents, and even managers. I think there is not a man here, if he looks back, but can see that if he had had some opportunity to get some special technical training, instead of gaining all his knowledge by hard knocks, he would have been far more efficient than he is to-day, and of far more use to the corporation for which he works.

An Abnormal State of Industry.

When we think of the present conditions, of the extraordinary condition of the labor market as it is to-day—of the dearth of labor of any kind, we know that we are in an entirely abnormal state of industry. Think ahead after the war—think of the imperative need of extensive technical training in Canada. The different nations among the Entente Allies will all have an opportunity to benefit by conditions after the war. It is said on good authority that Germany's industrial organization is cracking under the tremendous strain of war; they have had to use paper as a substitute for leather; paper clothes, paper underwear, paper shoes, etc. Their railroads have reached a very bad condition through deterioration; their textile industry is absolutely demoralized. It will be very hard for them to reorganize after the war. Therefore, Canada has a magnificent opportunity to become absolutely self-contained as far as her own needs go in relation to productive manufacturing from her own resources. She has also a good chance to share in the world trade, which Germany, the United States and England dominated before the war. In order to do this, however, our people must develop more productive power, and must posses a greater amount of industrial skill.

What a Returned Soldier Did.

With trained men you can do anything. Our experience in giving technical training to returned soldiers has proved that it does not take very long to get results in vocational education. Let me tell you of a returned man in the Province of Quebec. He was one of twenty-five children from one mother—nineteen of whom are now living. He never saw the inside of a school-house. When he was eleven years old he was placed in a cotton factory to work. At the age of fourteen he left the family and started to earn his own living as a teamster. He continued in that occupation until he enlisted in 1914. Eventually he was wounded, and sent back. In the convalescent home he entered the general education class the day he arrived. When he was sent to a hospital for an operation he had his books sent up, so he would not waste any time. In four months he could write a good hand and studied arithmetic up to percentage, and decided he knew enough in a general way. He then entered the class in machine-tool operating, and followed this for three and one-half months. When he was discharged he secured a job with the Dominion Bridge Company the next day at $20 per week, and in three

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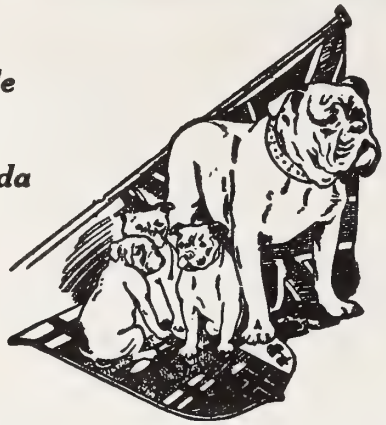
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months he was making $5.50 a day, with the whole world before him.

Another interesting case was that of a boy who had been a driver on a milk wagon, where he worked 14 hours a day for $50 a month. At first we could not find out what his particular aptitude was. We took him all over the building, and showed him the various classes; there did not seem to be anything that interested him, till he came to the draughting department. After two months' training he secured a position as junior draughtsman at $75 a month. The great thing is to develop the particular aptitude a man has, and then when the man develops along this line that has been his deepest desire, there is no telling to what height he will rise in this world.

If we take up the matter seriously we can establish vocational training all over the Dominion. The sooner it is done the better. Back in 1912 a Royal Commission sent in a most comprehensive report on vocational training. If it had been accepted, Canada would have had the start of the United States. Since that time everybody has become convinced that it should have been favorably received and some action taken thereon. I believe, however, if the Canadian Manufacturers Association start a propaganda now for technical education, and really follow it seriously by going to the Dominion Government and demanding attention to this question, that they would get it. If you take up the matter here in this meeting, and put in the form of a strong resolution to the Dominion Government and express your convictions just as deeply as you feel them, you will have influence with the Government. If the other branches were alive to it, and if the other provinces were made alive to it, it would not be long before some action would be taken, and we would be on the highroad to securing the skilled men in industry which, you all know, is the imperative demand to-day.

REVIVAL OF SHIPBUILDING.

Gratifying Developments Have Been Taking Place in the Province of New Brunswick Where Many Ships are Under Construction.

The revival of the wooden shipbuilding industry in New Brunswick is one of the most agreeable signs of the times, says the *Board of Trade Journal* of St. John. Not only is the actual construction of ships giving employment to many men in the yards and in subsidiary industries, but it is also furnishing a means of employment for many woodsmen, thus distributing a large amount of money.

In the Grant & Horne yard, Courtenay Bay, St. John, the first of the wooden steamers for the Imperial Munitions Board is well advanced. The framing is complete, and other work is being forwarded preparatory to the placing of the machinery and the closing in of the ship. Already considerable timber has been prepared for the second steamer of the contract.

The yard of the Marine Construction Company, Canada, Ltd., on the Strait Shore, is giving employment to sixty men. A schooner of about 900 tons is under construction, and timbers are being got in readiness for further building. This yard is now well organized and equipped.

At St. Martins, St. John County, a schooner of 450 tons is in frame and will probably be ready for launching in the spring. The builders are the St. Martins Shipbuilding Company. This vessel will be followed up by others.

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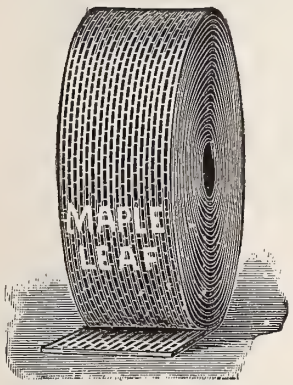
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Peopling the Land and Increasing Production

Development of the Land Must Go Hand in Hand with Increase in Manufacturing if Canada is to Hold Her Own in the Economic World*

By A. S. BARNSTEAD

Secretary Industries and Immigration for Nova Scotia

A FEW years back, Hon. Walter Scott, the then Premier of Saskatchewan, said that Canada's chief problem was to increase her population and production. That, he said, will be the chief problem after the war as it was before the war and as it is during the war, saving the issue of the war itself. I do not think that there is very much doubt to-day on that point. Anticipating after-war conditions, Lord Shaughnessey has said we in the Dominion and the provinces must get together on this important phase of the matter so that we may deal with it carefully, intelligently and wisely. There may be little immigration during the first months after the war. It will take ten or twelve months to bring back our soldiers and secure them employment. This will keep us busy for a while, but that there will be immigration there is no room for doubt. No country has been so widely advertised as Canada. Her sons have fought gloriously and made her name a word for bravery. Men of all nationalities will want to settle in the country from which these Canadians have come.

What kind of immigration may we expect? Many who come will be without experience in actual farming conditions; but many who have been engaged in war will be inured to hardships; will have their muscles in good shape and will want more of the outdoor life. They will have to overcome insular prejudice. Every one of us who has had to deal with immigration to Nova Scotia knows how difficult it is for them to overcome early difficulties, how hard it is for a newcomer to grasp conditions and make a success of his affairs at the start. Many have succeeded and have done well, but, nevertheless, we know many on whose front door may be written the word "failure," simply because they were not acquainted with local conditions, and no helping hand was extended to them, or because they were not willing to accept the proffered hand. The successful man is the one who can adapt himself to his surroundings and yet improve them.

Why Immigration Went West.

If immigrants have not come in large numbers to this part of the country, it is due largely to the fact that the immigration authorities left the direction of the emigrant in the hands of booking agents in the Mother Country, whose great concern was the booking fare and the percentage of the rate of transportation across the country which would come to them. In the East we have to contend with the fact that for

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a man going to Calgary or the West the agent gets a much larger bonus. He naturally was prejudiced. We have not free crown lands to offer in the same way they can do in the West. I do not know well the conditions in New Brunswick, but those in Nova Scotia differ from the conditions in the Western provinces. Moreover, in the East it is expensive to clear land. We are trying to dispose of vacant farms to new settlers; in some cases, where the farms are large, to divide them and to help the new comer to purchase lands. We have not the 160 acres, too, in which he may plant crops almost immediately. He must first purchase his land. In order to know the exact position a survey of the land in Nova Scotia is proposed and to know which farms are available so that when immigration commences again to flow we will have much information that can be placed before newcomers.

May I cite for your information the case of a Hollander that we started in farming just before the war broke out. We felt that our conditions were not known and that perhaps the best advertisement that we could make would be to bring here some men who were experienced in farm life and have them succeed. Our plan was to take twenty-five or thirty families and place them in different parts of the province. They were not necessarily to be men with capital, but men with possibly very little capital, who would be given the start that they required. If they had capital so much the better.

Setting Up Farmers in Business.

The Immigration Department at Ottawa said "We know that most men with money and experience can succeed, but what about the many with little money and without experience?" Hence our experiment. The war broke out and interfered with our plans. But we got several men—placed some of them in Hants and Cumberland County. The other day Mr. Murray and I went up to see the farms and to take notes of what they were doing. We put these men on lands that were vacant, farm houses that were considerably run down—on two of these farms the brown top growing no more than a foot high, but when we were on the land a few weeks ago one could not pass through the hay without tramping it down, and it was two and one-half to three feet high—eight acres of this hay on land scarcely producing before.

This man settled in 1914. He had not a copper when he landed in this country—we paid his way and that of his family, and this year he is supporting his family from his own money, purchasing seed and putting in his crop. We assisted him in the purchase of implements, stock and of the farm; but no clothing, food or anything of that kind, except for the first two months. He has 45 acres in potatoes, turnips, peas, oats, beans, buckwheat, wheat, barley, besides these acres in hay.

How One Experiment Worked Out.

Another man has done much the same. This man's son went overseas last year, and has since been wounded. The other son is on the farm. They came out as strangers to our land in 1914. Now he has 3½ acres in potatoes, 5 acres in turnips, 3½ acres in oats, 4 in beans and peas, and other crops. This man is succeeding. He wants more land; he does not think he has enough land upon which to expend his energies. He works early in the morning and late at night. I might give instances of other men who have succeeded in that way.

It is a difficult proposition for a man to come to this province and establish himself at once on a farm. Some of these farms have been lying idle for years. It is necessary before we settle these men on farms to know that the land

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is good, and will be worth the labor they may expend upon it. The Agricultural College will make an analysis of the soil for all who ask it. We ought also to have a policy of financial assistance to settlers, enabling them to obtain money cheaply. It is necessary to assist our settlers. That policy has been adopted in Europe, in Great Britain, in Italy, in Russia, and later in Ireland, and within the last two years in the United States.

No Assistance Yet for Settlers.

We have not yet in Canada adopted a Canadian policy of assistance to settlers. They have adopted lately a policy of assistance for returned soldiers, but not for settlers coming from the old lands. We are still behind the old countries in this respect. If we are going to receive and retain any people in these Eastern Provinces, we must make up our minds for an advanced immigration policy. It is no use to let immigrants come here unless we assist them and help them to get a start. They do it in Australia for the settler; they have done it to some extent in the West, but not in the East. There has been no outcry about the thirteen million dollars loaned to farmers in the West. If two millions were loaned to farmers in the East it would be blazoned everywhere as extravagance. In loaning money to these farmers we cannot expect them to start paying it back the first year. Our experience of settlers here is that the hardest period for new settlers is during the first three years. He should have an opportunity of getting money, and not be required to pay any of the principal back during the first three years of life in this country.

Might I refer you to a case of a man who came out here and settled in Pictou County in 1910? The man and his family landed in Halifax, bound west. But the fare was large. He did not have more money than enough to get there. He was advised to stay in Nova Scotia. He subsequently purchased a farm in Pictou County, and has been there for seven years. He now owns the whole of what is known as Roy's Island. He purchased 110 acres for $900, all paid for except $104, which will be paid for with produce this fall. Then he bought a 30-acre lot for $210 cash. Next he bought a 30-acre wood lot for $125. A couple of months ago he got the last lot, 30 acres, for $320. His live stock and farm are now worth $5,500 or $6,000, and he started on $275, and he had $600 from life insurance. This in seven years. He has now seven fine horses, including a fine imported Clydesdale stallion, eighteen head of cattle, including one bought in Truro for $265, another $150, and a heifer worth $70, and two bulls, pigs, sheep, geese, hens, etc., all these being registered stock. This year he had four and one-half acres of potatoes, five of wheat, seven of oats, some barley, buckwheat, half an acre of vegetables, and the usual patch of strawberries.

What Might Be Done in Canada.

This is what can be done. The right kind of man will succeed without question. "After-the-war problems" we must consider now. We have to prepare the way not only for the returned soldiers, but for the settlers who will come to this country then. Great Britain's expenditure in three years of war has been 21,975 millions of dollars. We are astounded by the fact that Great Britain has paid one dollar for every two and a half of this expenditure out of their ordinary revenues, one dollar in seven of all their borrowings, and they are doing it willingly. Now supposing we in Canada with our much smaller expenditure were to continue on for a couple of months our war expenditure, and

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HAMILTON -- -- CANADA

apply it to peace conditions? Call it a war expenditure if you like, and apply it for just such purposes as I have outlined this morning. You would not begrudge the expenditure if it were a war policy. Why, then, for a peace policy? We have learned to think differently of money since the war; we talk in millions instead of thousands. If we did this we would have something to show for the money.

During the last session of the Dominion Parliament there was enacted legislation to assist returned soldiers and designed to increase agricultural production. A board is to be appointed which may loan from $2,000 to $2,500 for the assistance of returned soldiers on the land. I do not want to go into details. Under the Act the Minister of Finance or the Board says that this money shall be a first charge on the land. I suppose from a certain point of view it is all right, but the effect is that the man may go to the West—he cannot come East without purchasing at large cost, and he will take his two thousand and expend it on his property—he will have nothing to tide him over, and he will have nothing to buy machinery, etc., and he cannot go to a loan company.

Money Must Be Provided.

We have a "Loans to Settlers Act" in Nova Scotia, as in New Brunswick. We also take a first mortgage on the land, and we will lend up to eighty per cent. of the value of the land. It is unfortunate that the Dominion and provincial policies are not to be co-ordinated. The largest number of people coming back will be returned soldiers, and it will be necessary for all the provinces to supply employment to these. To encourage settlement on the land, our Government now lends money to the settlers from the British Isles or elsewhere, to an amount up to eighty per cent. of the value of the land—the Government guaranteeing to the loan company what is over and above forty per cent. of the purchase price. The earlier payments may be extended for a period of from three to five years, in order to assist the men. The Government does not borrow direct from the bank, and we cannot loan it at as low a rate of interest as if borrowed direct from the bank. That is one weakness in our present policy. I would like to give these men money at as low a rate of interest as it is possible to secure the money.

Farming and Industry.

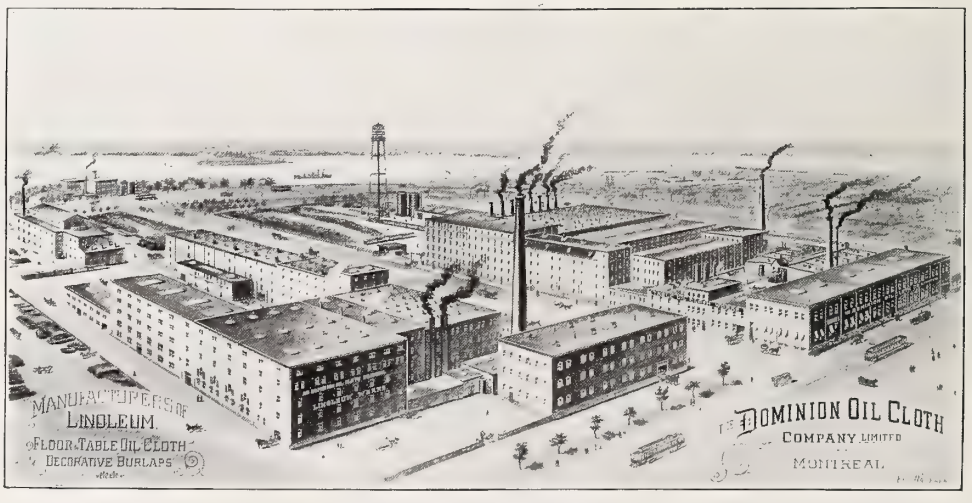
This whole question is important. I have presented but a few facts to show what is being done on their behalf through our immigration policy.

It vitally relates to your sphere of activity, for men must live from what they earn. With cost of living advancing, wages must increase. It means no more comfort to the laboring man even if he gets higher wages. The question is oftentimes asked even now, does he get enough to live on? Development of the land must go hand in hand with increase in manufacturing if we are to hold our own in the economic world. It is the highest type of national service to solve this problem. No half measures will avail. Growing grain and raising cattle to feed the world is in itself service—building up the country, assisting in making it progressive and prosperous. It is all-important to maintain a competent rural population. Rural districts have been rightly compared to seed beds, from which the towns and cities are stocked with people. Upon the character of this stock, more than on anything else, does the greatness of the nation and the quality of its civilization ultimately depend.

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Misconceptions Regarding Returned Soldiers

Only a Very Small Percentage Return with Serious Physical Handicaps and Ninety per cent. Can Go Back to Their Old Jobs*

By PROFESSOR F. H. SEXTON
Principal Nova Scotia Technical College

AS vocational officer with the Military Hospitals Commission for the past year and a half, I have been dealing intimately with returned soldiers, and I wish to correct some of the common misconceptions in regard to the man back from France. Most people think there is a large percentage of hopeless cripples. You may form your own judgment when I tell you that out of the whole army we have had in the field, only thirty-four have lost their sight. Of the 25,000 who have come back to Canada, only 3½ per cent. have suffered amputations. Only one returned soldier has lost both hands and both legs. We now have nearly 1,500 convalescent soldiers in Canada with tuberculosis. The other two diseases for which men are rejected from the trenches are rheumatism and heart disease.

Visitors to our convalescent homes expect to see large numbers of mutilated men, and are surprised to see most of them walking around with no visible disability. As a matter of fact the soldiers for front line work must be as hard as nails and as sound as a bell. They cannot stand the terrific strain unless they are perfectly fit, and a comparatively slight disability may throw them into the discard. While they are medically unfit for military service they are far from unfit for industry or business. Ninety per cent. of the returned men can go back to their old jobs without any serious difficulty. The other 10 per cent. are being trained by the Military Hospitals Commission for some other useful occupations, where their physical handicaps due to service will be little or no detriment to full success. Out of the 10 per cent. there will be some who are too seriously injured to be reclaimed, and there will be some who have mental or moral defects, which will make them public charges.

Must Not be Foolishly Sentimental.

Great consideration must be paid to those who can go back to work. We must not be foolishly sentimental over them with the attention and sympathy which will sap the sturdy, independent manhood which is the common attribute of Canadian citizenship. We must treat them in a strong, wise, just manner, as man to man, until they get on their feet. The returned soldier must have the preference when it comes to getting a job, and we must be uncommonly careful that he is given the best job he can fill satisfactorily. He may need some extra attention and consideration for a few months, not any exemption from regulations, but just a little extra super-

* Portion of an address delivered before the Maritime Branch, Canadian Manufacturers Association.

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vision and help, and he will be all right again and usually a better man for what he has experienced in the army.

The question of settling the soldier on the land has been brought up. A great deal has been written in the press about this problem in a purely academic manner. It has been put forth that the soldier has lived so long out of doors that he will be loath to return to the desk or factory. There is a certain amount of truth in this supposition, but this factor does not balance the social desire of the average soldier to be in constant contact with great numbers of his comrades. The loneliness which seems to be concomitant with rural life leads him to turn his face toward the towns and cities.

A Survey of 200 Soldiers.

I made a brief survey of some two hundred soldiers in three convalescent homes in Eastern Canada. The results showed that about 50 per cent. had been brought up on a farm, but only about 10 per cent. had remained there. A very small proportion owned farms, and only about 4 per cent. signified their intention of going back to agriculture. This does not look very hopeful for those who wish to get soldiers back to the land in the East. In the West farming is the main industry, and much larger numbers will go back to this occupation.

I feel, however, that the figures given are misleading with respect to the future, because at the present moment the opportunities for employment in manufacturing are so attractive that many of the men returning at the present time are lured thither. After the war is over and the ensuing temporary depression occurs, farming will be relatively more promising. The men who have come back so far are not all physically disabled in some manner, and the whole soldiers who return after the declaration of peace will be more prone to take up farming under the attractive schemes provided by the Dominion and Provincial Governments. I make these comments in order that I may present to you the impressions that have been forced upon me in the work with the returned soldiers.

ECONOMY BUYS "ARKLESS" FUSE.

An Important Change in the Electrical Industry by Which One Company Absorbs Fuse Business of Another.

An announcement of peculiar interest to the electrical industry and to all users of fuses is made in a letter addressed to the trade, stating that the entire fuse business of the Detroit Fuse and Mfg. Company, makers of the long-established line of "Arkless" enclosed fuses, has been purchased by Economy Fuse and Mfg. Company, Chicago.

The transaction includes the conveyance of all merchandise, materials, machinery, tools, designs, patents, goodwill and unfilled orders. The physical assets of Detroit Fuse and Mfg. Company, in so far as they pertained to the making of fuses, have been shipped to the Chicago plant of Economy Fuse and Mfg. Company, where the manufacture of "Arkless" fuses will be continued, production being, as heretofore, under the label service of Underwriters' Laboratories, Incorporated. One organization will produce "Arkless" non-renewable fuses —"the fuse with the 100 per cent. indicator"—one of the oldest standard fuses on the market, and Economy renewable fuses, the pioneer fuse of the renewable field.

Arrangements made well in advance enable Economy Fuse and Mfg. Company to take over the "Arkless" fuse business without interference with delivery of either "Arkless" or "Economy" fuses.

It is to be well noted that the "Square D" line of enclosed safety switches remains the property of Detroit Fuse and Mfg. Company, who will concentrate on its production and marketing.

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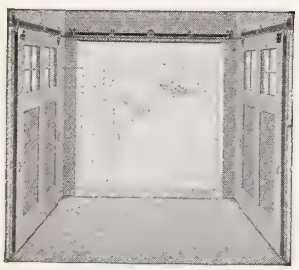
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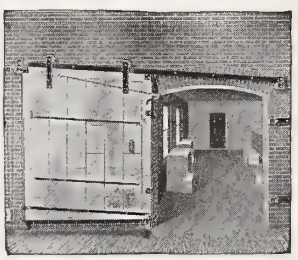
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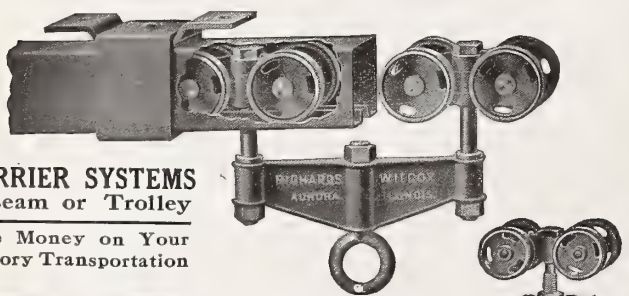
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ROYAL BANK'S PROGRESS.

Institution Has Made a Gain of Over Eighty-Two Millions in Assets and Fifty-Two Millions in Deposits.

The Royal Bank of Canada, in its annual statement for the fiscal year ending November 30th, 1917, makes a most striking and valuable testimonial to the remarkable strength of Canada's financial position. For many years past the giant strides made by the Royal have, perhaps, been one of the outstanding features of the expansion enjoyed by our larger Canadian banks.

This year's showing, in point of growth of assets, of increase in deposits, of business handled, of special Government undertakings, probably constitutes a new record in the history of Canadian banking. In the case of the Royal such an achievement has perhaps added general interest because, among the larger banks of the country, the Royal has established itself to a very considerable extent as the bank of the people as compared with the larger corporation or Government accounts that are regularly handled by other institutions.

Total assets have jumped to $335,574,186, an increase for the past twelve months alone of $82,000,000. This increase in the one year is equal to the total assets the bank had ten years ago, after thirty-five years of business. In the past two years the increase in assets has amounted to $137,000,000. A closer study of the statement shows more clearly how the Royal is benefiting from a strong organization in every section of the Dominion, as deposits have increased over $50,000,000 during the year, and almost $100,000,000 in the past two years. The total deposits now stand at $252,987,382, as compared with $200,227,595 a year ago, and $154,976,327 two years ago. Of this total deposits not bearing interest now stand at $70,498,667, compared with $59,365,396, and deposits bearing interest $182,488,715, as against $140,862,199 a year ago.

With its very much larger assets the bank has evidently been able to handle a larger proportion of the increased business offering in the country, as reflected by a gain in current loans to $102,358,027, as compared with $86,936,631 last year.

LUMBER MANUFACTURERS MEET.

Mountain Lumber Manufacturers' Association Held Meeting Recently in Calgary.

At a meeting of the Mountain Lumber Manufacturers' Association, held recently in Calgary, it was stated that lumber prices on the wholesale list have advanced $2 per thousand on common lumber, such as dimension, scantling and timbers, $5 per thousand on finishing lumber and 75c. per thousand on lath.

In the discussion at the meeting it was disclosed that the production of manufactured lumber was disappointing, and much less than had been anticipated, due to the inexperience and inefficiency of labor. The cost to manufacture was much greater than estimated. As many camps as possible will be put in this winter for the getting out of logs, although labor is scarce and supplies higher in cost.

Among those present at the meeting were: C. McNabb, Baker Lumber Co., Waldo, B.C.;; F. W. Adolph, Adolph Lumber Co., Baynes Lake, B.C.; A. Leitch, East Kootenay Lumber Co., Jaffray; G. W. Barclay, Crow's Nest Pass Lumber Co., Wardner, B.C.; H. C. Meeker, Nicola Valley Pine Lumber Co., Canford, B.C.; W. S. Lammars, Adams River Lumber Co., Chase, B.C.; Mr. Cooke, Columbia River Lumber Co., Golden, B.C.; Mr. Donelly, Northwest Lumber Co., Edmonton, Alta.; and W. A. Anstie, Forest Mills, Revelstoke, B.C.

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Human Factor in Safety First Movement

How it is Being Reached and Controlled by Common-Sense Methods which Aim at Accident Prevention by Co-operation*

By A. P. COSTIGANE
Safety Engineer for Ontario Pulp and Paper Mills

I WOULD like first to give a few figures relating to accidents which occurred last year in the pulp and paper mills of Ontario. There were 465 accidents. altogether. Four hundred and twenty-one caused temporary disability, 34 caused permanent disability, and 10 caused death. Machinery and tools were responsible for two deaths and 27 permanent disablements. Shafting and set screws caused one death and three permanent disablements. Falling objects caused four deaths and two permanent disablements. Electric current caused one death, and drowning accidents accounted for two deaths. Of the 421 temporary cases, thirty developed blood poisoning.

These figures speak loudly and teach us many valuable lessons. For instance, blood poisoning cases could be very much reduced if the injured parties would immediately apply for a First Aid dressing. I know many men consider it beneath their dignity to have slight cuts and bruises attended to, but isn't it better to pay attention to slight injuries than suffer the result of a poisoned limb?

Turning now from our immediate affairs I will give you a few figures showing the great results that have been obtained from safety organizing in the United States since its inception a few years ago. For these figures I am indebted to Mr. C. W. Price, Field Secretary of the National Safety Council. The United States Steel Corporation was the pioneer in the present organized accident prevention movement, and has without question made the largest contribution to the cause; not only in showing what it is possible to accomplish but more important still, in demonstrating the most efficient methods of promoting safety. The records of this corporation show that during the nine years, reaching down to the end of 1915, 14,967 men have been saved from either being killed or seriously injured. An injury is classed as serious when some member is lost or when 35 days' time is lost. The significance of these figures is revealed when I say that this represents a city of 100,000 men, women and children, in which city the head of every home has been saved from death or serious injury.

The most remarkable story of the history of accident prevention in the United States is the story of what the great railroads of the country have done. Five years ago the Chicago & Northwestern Railroad began to work out an efficient safety organization. They have now 800 men serving on the safety committees, and during the five years they have

* Address delivered by Mr. Costigane at a Safety Rally held last month at Thorold.

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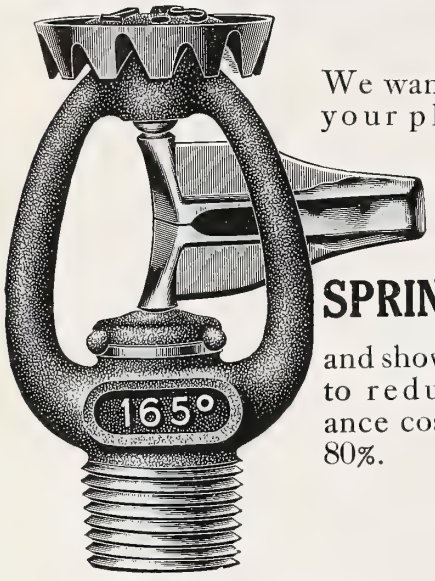
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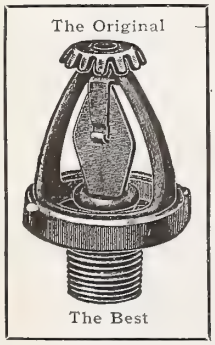
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reduced deaths 65 per cent. The El Paso Southwestern Railroad has reduced deaths to employees 83 per cent. The Southern Pacific Railway has reduced deaths to employees 86 per cent. Three hundred and twenty-five railroads having tracks of 162,000 miles and carrying 485 million passengers did not during the year ending June, 1916, kill one passenger in a wreck.

These figures are authentic and show a remarkable progress since the time safety organizing was first recognized as making for efficiency and was tackled in a determined manner. Surely what has been accomplished in the railroads of the United States can now be accomplished in the pulp and paper industry of Canada.

A Most Humane Measure.

The Workmen's Compensation Act which came into operation about two years ago is one of the most humane and progressive measures that has ever been passed by any Canadian Parliament. Previous to its enactment all claims for compensation for accident were made under common law, and in serious cases the claims were usually opposed by insurance companies who had insured employers' risk. In the event of the insurance company being able to prove contributory negligence, little or no compensation was awarded the injured party. Besides being an expensive and uncertain method of procedure, the ability to appeal on the part of the insurance companies who had funds at their disposal, against the inability of the injured or his dependents to procure funds to cover legal expenses, resulted in many cases of gross injustice. Many just claims for compensation for accidents, sometimes caused by flagrantly unprotected machinery, never received compensation of any kind on the ground that such hazards were accepted by the employee when entering the service of the company. The Workmen's Compensation Act has done away with all injustices of that nature, and as the government handles all the business itself, insurance companies are eliminated. Under the Act, no matter how, where or when an employee is injured while executing the duties of his employment, he is entitled to compensation. Is not this a great advance in progressive legislation, and does it not speak eloquently of the change of attitude as between employer and employee?

Human Life a Great Asset.

Legislation of this kind is the outcome of a realization by the people in general that human life is one of the greatest assets the country possesses. I have tried to explain the trend of legislation to impress on you and all employees that it is they who benefit. That being the case, it should not be difficult to enlist your co-operation. No matter from what angle accident prevention work may be studied the result always comes back to co-operation between employer and employee, and let me emphasize this with all the force at my command: No permanent progress can be accomplished unless all employees, individually and collectively, earnestly and sincerely do all they can to further the good work. Who suffers when an accident occurs? Not the employer (except financially). It is the injured party; he suffers pain, he suffers loss of wages, and if he is married, his wife and family suffer with him. You may say, compensation will be paid. Yes, but what money can compensate for the loss of a finger, a hand or a leg, or in the case of fatal accidents, what can compensate a wife for the loss of a husband, a child for the loss of a father, or what can compensate a widowed mother for the loss of an upright and well-doing son, her only support? I tell you, friends, these accidents can not be compensated, and it behooves every one of you to think this matter over seriously and make up your

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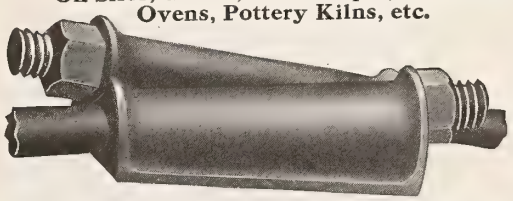
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A trial shipment will demonstrate the facilities we possess for giving COMPLETE SATISFACTION.

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mind that you will do all in your power to prevent accidents not only to yourselves but to other employees. If you see anything wrong in the factory, report it at once; if you see a fellow employee doing something dangerous, reason with him in a friendly way, and above all, help out the green man who may, unknown to himself, be taking serious chances.

The Human Factor in Accidents.

Prevention of accidents have been tried before, mainly by legislation, and it has failed. Why? Because it did not take into consideration the human factor which is responsible for most of the accidents that occur. The human factor is now being reached through common sense methods of Safety First, which aims at accident prevention by co-operation. Friends, this move has been a success and will be a greater success as time goes on. Every day someone is adding a thought or an effort to make it more successful. Why does it succeed? Because it is right, and nothing that is right will ever fail. It appeals to the men, because it prevents their being injured. It appeals to families because it precludes poverty, distress and suffering. It appeals to the practical man because it increases efficiency. No movement has progressed so fast or so far and is productive of such benefits as Safety First. When all men understand that the greatest risk is being injured by some careless or thoughtless person, we are going to put an end to many of the accidents that were considered inevitable. Accidents are not inevitable, and most of them can be avoided or entirely eliminated by the exercise of a little care and caution. Make up your mind to adopt the safety habit.

Here let me tell you a little incident that took place at a Safety Rally being held in a mill town in Ontario. When the audience were dispersing, I was standing at the door

THE
New Zealand Shipping Company, Limited
CANADA
TO
Australia and New Zealand

Regular monthly sailings from Montreal in summer and St. John in winter, calling at Auckland, Wellington, Lyttelton and Dunedin (New Zealand) and Melbourne and Sydney (Australia). Sailings 20th of each month.

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MR. MANUFACTURER

The next time you have a shipment that could be handled by the Canadian Northern Railway to destination—Test the Service.

Our lines are operating from Quebec to the Pacific Coast. They serve most of the great centres of industry and population, and traverse the great producing areas. Your shipper will tell you of the many points that may be reached over the Canadian Northern Railway.

So, next time you have a consignment of goods going out give the C.N.R. an opportunity to handle it for you. The service should satisfy.

TEST CANADIAN NORTHERN RAILWAY SERVICE

Principal Agencies: Halifax, N.S.; Quebec, Que.; Montreal, Que.; Ottawa, Ont.; Toronto, Ont.; Port Arthur, Ont.; Winnipeg, Man.; Regina, Sask.; Saskatoon, Sask.; Prince Albert, Sask.; Edmonton, Alberta; Calgary, Alberta; Kamloops, B.C.; New Westminster, B.C.; Vancouver, B.C.; Victoria, B.C.



and overheard a couple talking of the meeting. The wife remarked to the husband: "John, you will need to be more careful now of the way you throw matches around, you might set the barn on fire some day." "Yes," he said, "I will need to be more careful and you, too, will need to stop lighting the fire with coal oil." "Indeed, I won't," said she, "I have been starting the fire with coal oil for twenty years, and never had an accident yet." This woman was a convert to safety as it affected the actions of other people, but as far as she was concerned, it would probably take the setting of her clothes on fire to convince her. I want all here to be convinced right now, and not wait till an accident, serious or trivial, causes conversion through personal suffering.

Most of the industries in this district are doing what they can to guard physical hazards and it remains for you all to jump in and give a helping hand by spreading the gospel of carefulness wherever possible. We gamble more with our life chances than with our money and waste more by daily carelessness than any other means. Carelessness is the crime of individuals which any of them may avoid, and to save us from this demon of carelessness let us all get together and boost, not once or twice, but all the time, each and every day, morning, noon and night, the glorious and admirable cause of Safety First.

The Algoma Steel Corporation has started construction work on twenty-five new by-product coke ovens for the manufacture of tar, coke, ammonia, benzole, totuol, etc. The new ovens will be auxiliary to those now in operation, and will increase the output 30 per cent. More orders for munitions are to be taken when the work is completed next mid-summer.

JULIUS COHEN & JOSEPHY

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ENAMELWARE, TINWARE AND OTHER KITCHEN WARE

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MONTREAL WINNIPEG
VANCOUVER

McClary's

ST. JOHN, N.B. HAMILTON
CALGARY SASKATOON
EDMONTON

Buyers' Guide to Canadian Manufactures

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVE MATERIALS
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.

ABRASIVES
*D. A. Brebner, Ltd., Toronto.

ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.

ACETYLENE BURNERS
*The Prest-O-Lite Company.

ACETYLENE GAS
*The Prest-O-Lite Company.

ACETYLENE GAS BURNERS
Economic Acetylene Burner Co., Toronto.

ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.

ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.

AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.

AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Jenckes Machine Co., Sherbrooke, P.Q.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.

ALE
E. L. Drewry, Winnipeg, Man.

ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*The Steel Company of Canada, Limited, Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BEER
E. L. Drewry, Winnipeg, Man.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal, Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*Jenckes Machine Co., Sherbrooke, Que.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS
*The National Acme Mfg Co., Montreal., Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

*For Display Advertisement see Index, Pages 1417-1418



By Royal Warrant

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BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS GOODS
*United Brass & Lead Ltd., Toronto.

BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.

BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.

BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.

BUCKET TANKS
*The General Fire Equipment Co., Limited, Toronto, Ont.

BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.

BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company, Toronto and Montreal.

BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.

CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.

CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.

CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.

CALENDARS, ADVERTISING NOVELTIES, etc.
Rolph & Clark, Limited, Toronto.
Lawson & Jones, Limited, London, Ont.

CAMERAS
Canadian Kodak Co., Limited, Toronto.

CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.

CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.

CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.

CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.

CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.

CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto.

CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto.

CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd.

CARBONS, flame
Canadian Carbon Co., Limited, Toronto.

CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.

CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.

CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.

CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.

CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.

CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.

CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.

CARTONS, lithographed
Harris Lithographing Co., Toronto.

CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, grey iron
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

CASTINGS, malleable iron
*Galt Malleable Iron Co., Ltd., Galt, Ont.

CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.

CATALOGUE MAKERS
Grip, Ltd., Toronto.

CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.

CELLBOARD
Adams Cellboard Co., Toronto, Ont.

CEMENT GUNS
Steel and Radiation, Ltd., Toronto.

CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.

CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.

CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.

CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.

CHEMICALS
*Cosmos Chemical Co., Port Hope.
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.

CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited Toronto.

CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.

CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.

CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited Galt, Ont.

CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.

CLOCKS, TIME
*International Time Recording Co. of Canada, Ltd., Toronto.

CLOCKS, WATCHMEN'S
*The General Fire Equipment Co., Limited, Toronto.

CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.

CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.

CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.

CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.

CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.

CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.

CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.

COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.

COFFEE
S. H. Ewing & Sons, Montreal, Que.

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.

COLLARS
The Standard Shirt Co., Limited, Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
Rolph & Clark, Ltd., Toronto.

CONCENTRATORS
*Jenckes Machine Co., Sherbrooke, Que.

CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.

CONDUITS, fibre tubing
*Beveridge Paper Co., Limited, Montreal.

CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
*Canadian Allis-Chalmers, Limited, Toronto.

CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*Jenckes Machine Co., Sherbrooke,

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COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DENIMS
Hamilton Cotton Co., Hamilton, Ont.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DIES
*John Whitfield Co., Toronto.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DOWELS
*Toy Products Ltd., Farm Point, P.Q.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt,
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
*Jenckes Machine Co., Sherbrooke.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.
ELECTROTYPING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited. Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.
ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
Rolph & Clark, Limited, Toronto
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.
ENGRAVING
*J L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa, Limited. Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.
EXCELSIOR
*Delany & Pettit, Ltd., Toronto.
EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal, Que.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited, Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.
FILING CABINETS
*Office Specialty Co., Newmarket, Ont.
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

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FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited. Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited. Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FLAGS
*Scythes & Co., Limited, Toronto.
FLASHLIGHTS
Canadian Carbon Co., Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin Ltd., Toronto.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, hot air
Bedford Stove Co., Bedford, Que.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited. Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.
GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton. Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GLASSWARE
Dominion Glass Co., Limited, Montreal. Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited. Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUAGES
*John Whitfield Co., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited. Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W Fearman Co., Ltd., Hamilton. Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills. P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville. Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Onto
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont
HARNESS
Lamontagne Ltd., Montreal, Que.

HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville. Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited. Montreal. Que.
INCUBATORS & BROODERS
Lee Mfg Co., Ltd., Pembroke, Ont.
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.

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IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto.
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que.
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAGER
E. L. Drewry, Winnipeg, Man.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock sole
The Breithaupt Leather Co., Ltd., Berlin, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
Rolph & Clark, Limited, Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
MACHINE TOOLS
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car shop
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, tannery
W. P. Plant, Hastings, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILING
*The Pedlar People Limited, Oshawa.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People Limited, Oshawa.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

*For Display Advertisement see Index, Pages 1417-1418

NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NICKEL OXIDE
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PAPER, writing, high-grade
*Howard Smith Paper Mills, Ltd., Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, gummed tapes
Gummed Papers, Ltd., Brampton, Ont.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Time Recording Co. of Canada, Ltd., Toronto.
PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Anthes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
PRESSES, veneer
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited, Toronto.

*For Display Advertisement see Index, Pages 1417-1418

*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.

PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.

PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.

PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.

RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.

RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.

RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.

RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.

RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.

RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO WEAR GARMENTS, LADIES'
H. C Boulter Co., Ltd., Toronto.

REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.

"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.

REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock Ont.

REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.

REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.

REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.

REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.

REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.

RINGS, gold
Caron Bros., Montreal, Que.

RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.

RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.

ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.

ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.

RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.

RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.

RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.

SALT
Canadian Salt Co., Ltd., Windsor, Ont.

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, crosscut and band
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton. Ont.

SCALES
The Gurney Scale Co., Hamilton, Ont.

SCALES, counter
The Gurney Scale Co., Hamilton, Ont.

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.

SCREENS
*Canada Wire & Iron Goods Co., Hamilton. Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited. Hamilton. Ont.

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.

SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton. Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*P. B. Yates Machine Co., Ltd., Hamilton. Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt. Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton. Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst. N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal. Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal. Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited, Toronto.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt. Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville. Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.

*For Display Advertisement see Index, Pages 1417-1418

Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PLATE WORK
*Toronto Iron Works, Ltd., Toronto.

STEEL PEN STOCKS
*Jenckes Machine Co., Sherbrooke.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.

TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TAPES, paper and cloth, gummed and ungummed
Gummed Papers, Ltd., Brampton,

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Time Recording Co. of Canada, Ltd., Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.

TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton, Ont.

TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.

TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.

TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited. St. Catharines.

TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.

TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.

TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS
The Gurney Scale Co., Hamilton, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.

TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.

TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.

TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.

TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.

TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal, Que.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.

TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.

TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.

TUMBLERS, foundry
*Northern Crane Works, Limited. Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TURPENTINE
*Brown Corporation, La Tuque, Que.

TWEEDS
Rosamond Woollen Co., Almonte, Ont.

TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.

TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.

TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont

UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.

UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

UNIONS
*Dart Union Co., Ltd., Toronto, Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.

UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.

VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, regrinding globe, angle, cross checks, swing checks, etc.
Penberthy Injector Co., Ltd., Windsor, Ont.

VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal. Que.

VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.

VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.

VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.

VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

WAGONS
TudhopeAnderson Co., Ltd., Orillia, Ont.

WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.

WASHERS
*The Steel Company of Canada, Limited Hamilton.

WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.

WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London Ont

WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.

WASTES, wool and cotton
Factory Waste and Metal Co., Montreal. Que.
*Scythes & Co., Ltd. Toronto

WATERPROOF, cement coating
Benjamin Moore & Co., Ltd., Toronto
*Beveridge Paper Co., Limited, Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited Walkerville Ont.

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WATER WHEELS
*Canadian Allis-Chalmers, Limited. Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal. Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton. Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton. Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John MacDougall Caledonian Iron Works Co., Ltd., Montreal Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.

WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHISKY
*Hiram Walker & Sons, Ltd., of Canada, Ltd., Hamilton, Ont. Walkerville, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal. Que.
A. Ramsay & Son Co., Montreal. Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited. Brantford. Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal. Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited. Montreal.
*Eugene F. Phillips, Electrical Works. Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited. Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada. Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Compony of Canada. Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Pages 1417-1418

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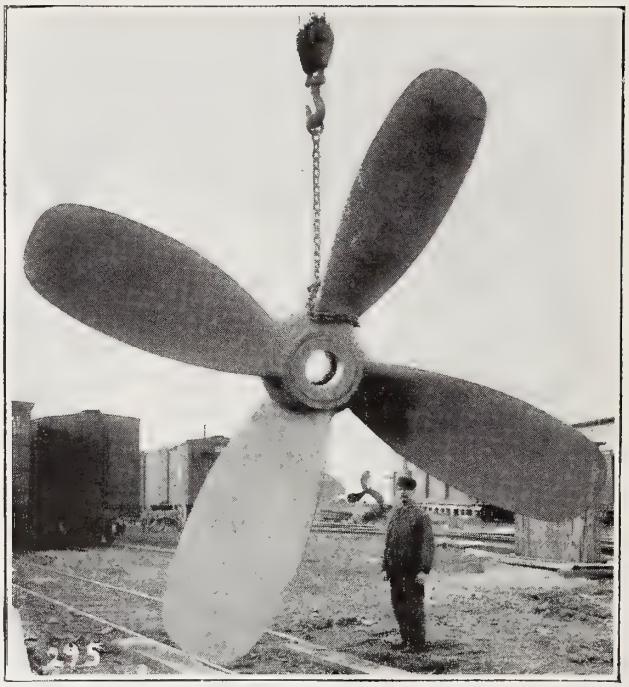
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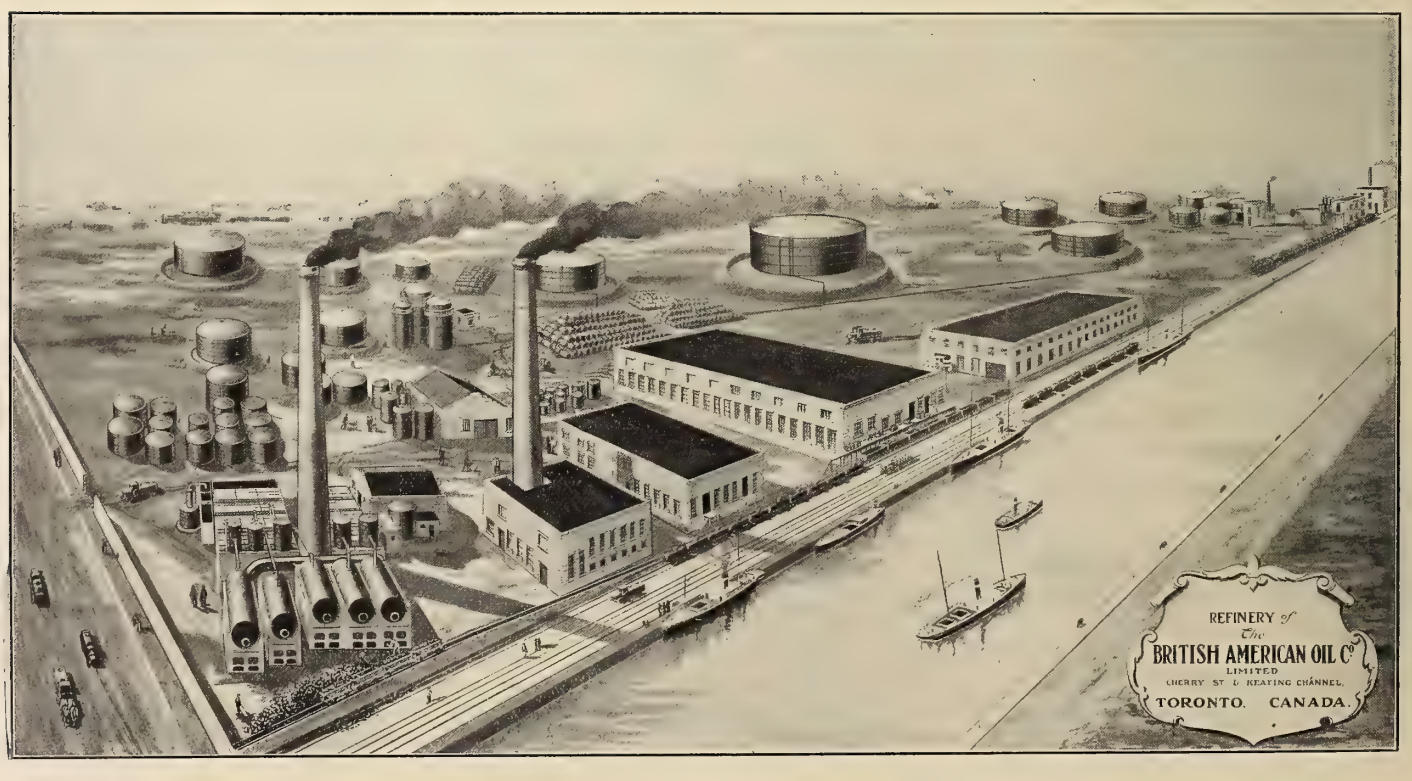
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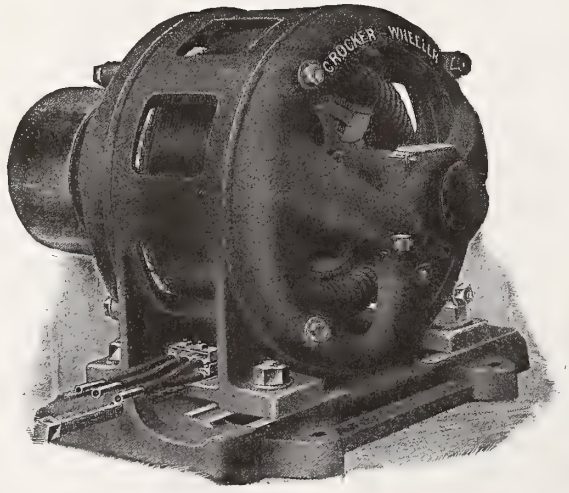
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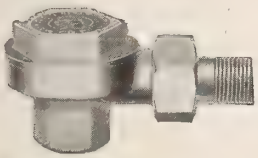


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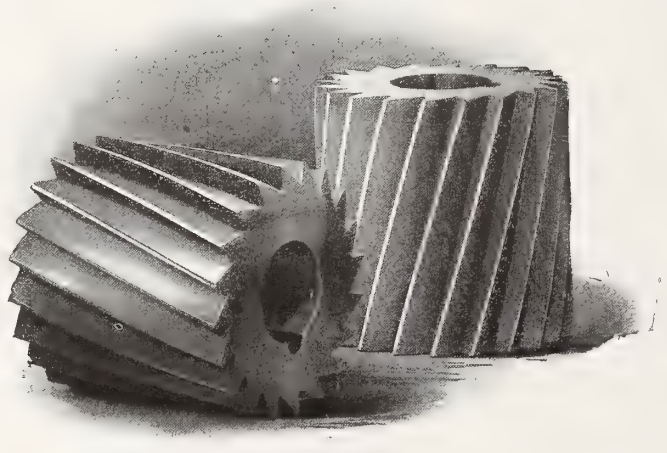
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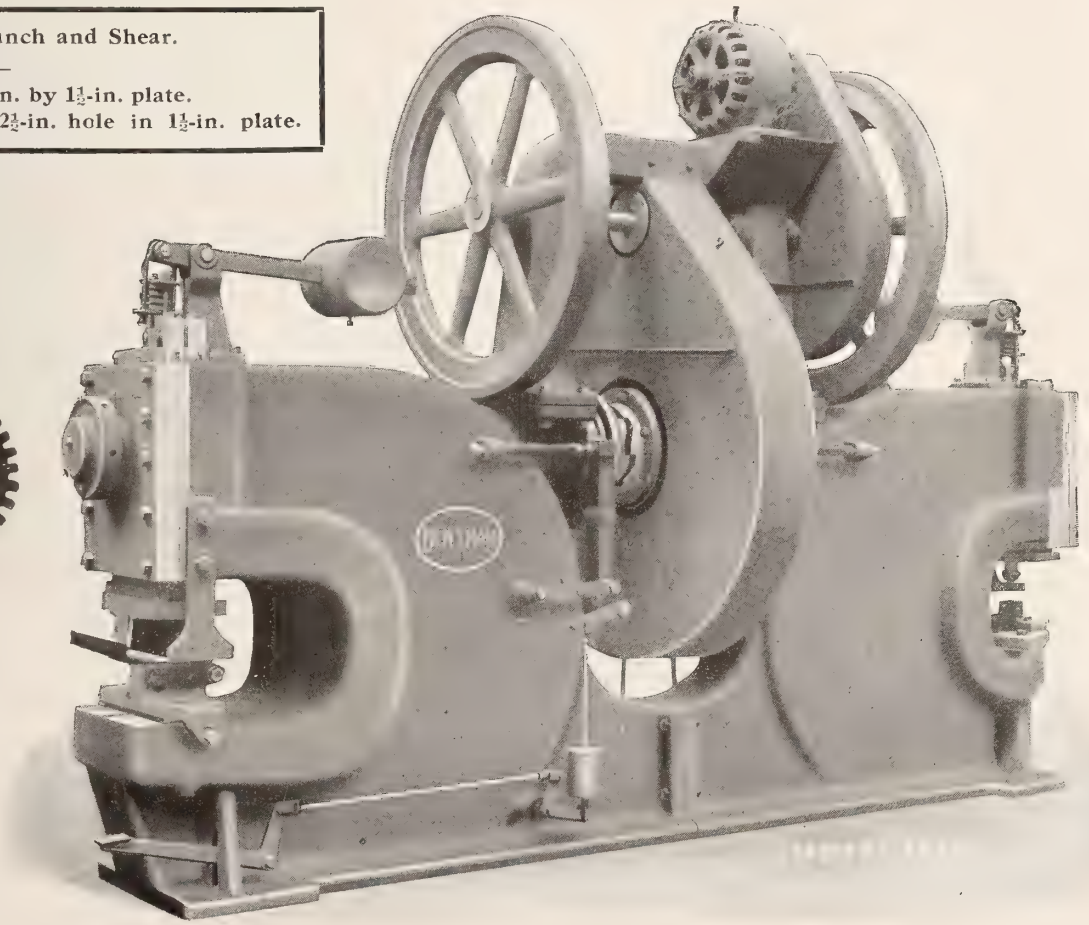
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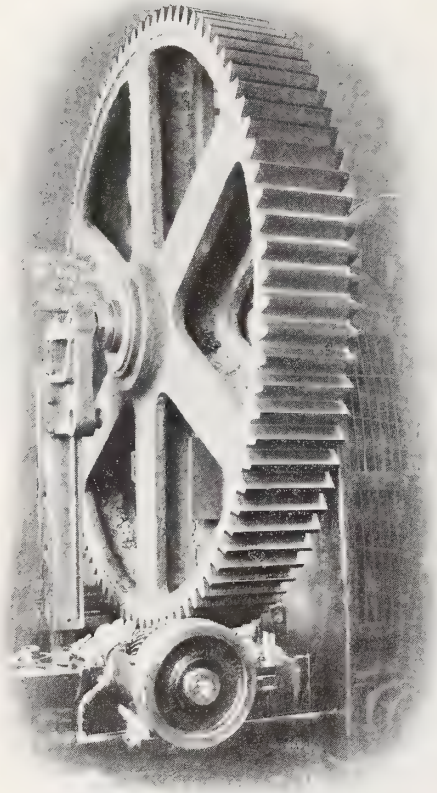
MONTREAL 723 Drummond Bldg. | TORONTO 1002 C.P.R. Bldg. | WINNIPEG 1205 McArthur Bldg. | VANCOUVER 609 Bank of Ottawa Bldg.

Double Punch and Shear.
Capacity—
Shears 8-in. by 1½-in. plate.
Punches 2½-in. hole in 1½-in. plate.



CUT GEARS



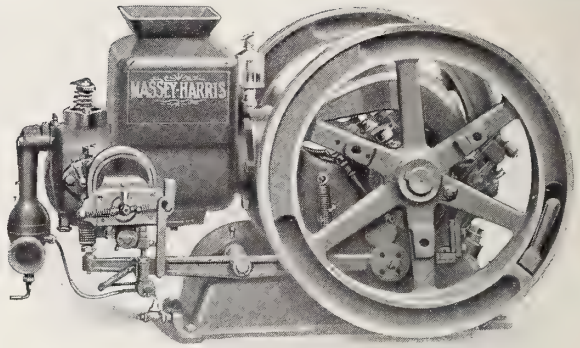


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Hamilton Gear & Machine Co.

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IN choosing an Engine, great care should be exercised. It is in use the year round, and for many years. The cost of operation and upkeep should be considered ahead of the first cost, bearing in mind that an Engine which is cheap only in the matter of price, is pretty certain to be an expensive proposition in the long run, with high fuel consumption, big repair bills and unsatisfactory service.

The Massey-Harris Engine is Famous for Reliability and Economy of Operation. It can be depended on the year round in any kind of weather, and the cost of maintenance is very low—it is easy on the gasoline and will be found exceptionally durable.

When you buy a Massey-Harris Engine, you buy more than an Engine—you buy years of satisfactory service — power when you want it and at a very low cost per horsepower. Stationary or portable, 2 to 15 horsepower.

MASSEY-HARRIS CO., Limited

Head Offices—Toronto, Canada

—Canadian Branches at—

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AGENCIES EVERYWHERE

Announcement

NOW MADE IN CANADA

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HOT AND COLD ROLLED

SHEETS——ROLLS
STRIPS——PLATES
ANODES
BUS BAR
RODS

Made in any width up to 66 inches, in all tempers for roofing, blanking, deep drawing, spinning. Accurate to gauge and highly finished.

PROMPT DELIVERIES

Brown's Copper & Brass Rolling Mills, Limited

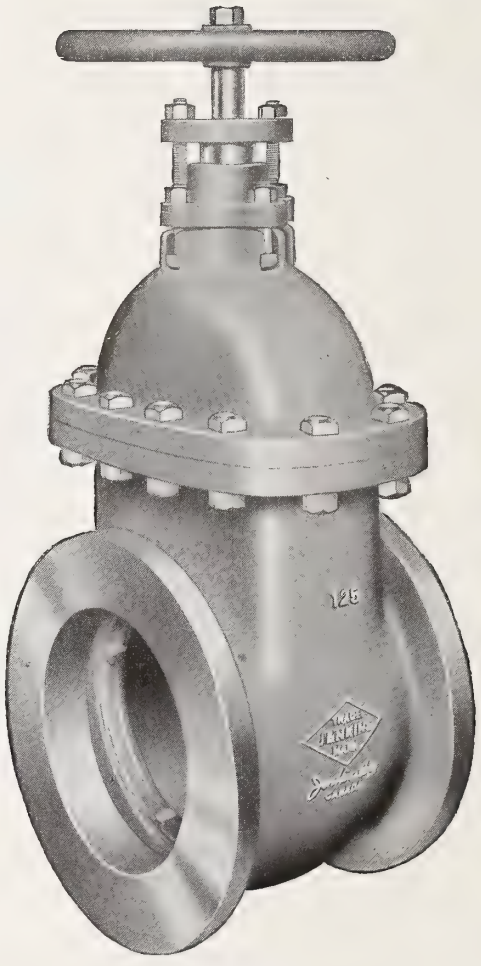
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TYPE "K" GATE VALVE

TRADE JENKINS MARK

Jenkins Bros



TRADE JENKINS MARK

Jenkins Bros

Fig. 402
TYPE "K"

IRON BODY INSIDE SCREW GATE VALVE FLANGED

Type "K" Gate Valves are made in Brass and Iron Body, screwed and flanged. None genuine without the "Diamond" Trade-Mark.

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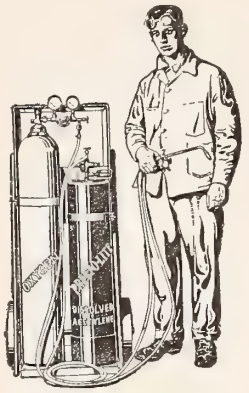
European Branch:
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LONDON, E.C. 4, ENGLAND

Prest-O-Lite PROCESS

Oxy-Acetylene Welding and Cutting Effects Important Savings Wherever Machinery is Used

HERE is information of vital importance to every Canadian who realizes that conservation is a matter of national necessity. The nation's scrap-pile is conservation's worst enemy. Hundreds of thousands of dollars' worth of valuable castings, machine parts and tools, are annually saved from the scrap piles of Canadian Railways, Steamship Companies, Mines, Factories, Machine Shops and Public Utilities Corporations by the Prest-O-Lite Process of Oxy-Acetylene Welding. All kinds of metals are welded by the Prest-O-Lite Process, which actually fuses two pieces of metal into one by the intense heat of a relatively small and easily controlled flame.

In almost every branch of human endeavor, where metal or machinery is produced, shaped, moulded, built or used, this process has proved itself to be a great economic factor and veritable revelation in cost-reducing and money-saving. The conservation of time and materials—so necessary to the **Country's** business, and **your** business—is **our** business.



The Following Representative Manufacturers, Utilities and Transportation Companies, are Using Prest-O-Lite Welding and Cutting Equipment, and Prest-O-Lite Dissolved Acetylene Exclusively, in Their Welding and Cutting Operations

Canadian Pacific Railway, all points.
Grand Trunk Railway, all Canadian shops.
Toronto, Hamilton & Buffalo Railway, Hamilton.
Niagara, St. Catharines & Toronto Railway, St. Catharines.
Michigan Central Railway, St. Thomas.
Temiskaming Northern Ontario Railway, North Bay.
Galt, Preston & H. Railway, Preston.
Guelph Radial Railway, Gueph.
Wabash Railway Company, St. Thomas.
Oshawa Railway Co., Oshawa.
Algoma Central & Hudson Bay Railway, Sault Ste. Marie.
Pere Marquette Railway, St. Thomas.
Toronto & York Radial Railway Co., Toronto.
Toronto Suburban Railway, Toronto.
Hollinger Gold Mines, Porcupine.
Porcupine Crown Mines, Porcupine.
Dome Mines, Limited, South Porcupine.
Nipissing Mining Co., Cobalt.
McIntyre Porcupine Mines, Limited, Schumacher.
British Forgings, Limited, Toronto.
Canadian Forge & Foundries, Limited, Welland.
Canadian Steel Foundries, Limited, Welland.
Dominion Forge & Stamping Co., Walkerville.
Canadian Buffalo Forge, Kitchener.
Algoma Steel Corporation, Sault Ste. Marie.
Hamilton Bridge Co., Hamilton.
Can. Chicago Bridge & Iron Works, Bridgeburg.
Gurney Foundry Co., Toronto.
Canadian Bridge Co., Bridgeburg.
Canadian Aeroplanes, Limited, Toronto.
Dominion Stove & Foundry Co., Penetanguishene.
Mueller Manufacturing Co., Sarnia.
Canadian Crocker Wheeler Co., St. Catharines.
Steel Company of Canada, Hamilton.
Swedish Crucible Steel Co., Windsor.
National Shipbuilding Co., Goderich.
Midland Drydock Co., Midland.
Welland Shipbuilding Co., Welland.
Polson Iron Works, Toronto.
Mattagami Pulp & Paper Co., Smooth Rock Falls.
Abitibi Pulp & Paper Co., Montreal.
Shawinigan Water & Power Co., Montreal and Shawinigan Falls.
Ontario Paper Co., Thorold.
Haupt Paper Mills, Camden (East).
Hydro-Electric Power Commission, Toronto.
Imperial Oil Co., Toronto and Montreal.
Oil Wells Supply Co., Oil Springs.
Dominion Natural Gas Co., Hamilton and Canfield.
Union Natural Gas Co., Chatham.
Canadian Billings Spencer, Limited, Welland.
Ford Motor Co., Ford, Ont.
Tudhope Anderson Co., Orillia.
Marathon Tire & Rubber Co., St. Catharines.
McLaughlin Carriage Co., Ltd., Belleville.
Packard Electric Co., St. Catharines.
Dominion Chain Co., Niagara Falls, Ont.
Nicholson File Co., Port Hope.
John Goodison Thresher Co., Sarnia.
Dominion Dredging Co., St. Catharines.
Lindsay Arsenal, Lindsay.
Public Utilities Commission of London, London, Ont.
Dennis Wire & Iron Co., London.
Standard Tube & Fence Co., Woodstock.
Canada Cycle & Motor Co., Weston.
Canadian Niagara Car Co., Niagara Falls.
National Manufacturing Co., Brockville.
Hayes Wheel Co., Chatham.
McKinnon Companies, St. Catharines.
Sudbury Construction & Machine Co., Sudbury.
Metal Specialties, Limited, Toronto.
Coleman Farebox Co., Toronto.
Page Hersey Co., Ltd., Welland and Guelph.
Electric Metals, Ltd., Welland.
T. Eaton Co., Toronto.
Penmans, Limited, Paris, Ont.
Guelph Carpet Mills, Guelph.
Imperial Cottons, Limited, Hamilton.
Canadian Cottons, Limited, Cornwall.
Canadian Kodak Co., Weston.
Proctor & Gamble, Hamilton.
Toronto Plate Glass Importing Co., Toronto.
Southern Ontario Gas Co., Glencoe.
Canada Carbide Co., Merritton and Shawinigan Falls.
Cobalt Reduction Co., Cobalt.
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ELECTRO PLATING
DEEP DRAWING QUALITY
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When you are in need of
STRUCTURAL STEEL
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STEEL PLATE WORK
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They will receive careful and prompt attention.

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ENGINEERS, CONTRACTORS, MANUFACTURERS
SHERBROOKE, QUEBEC

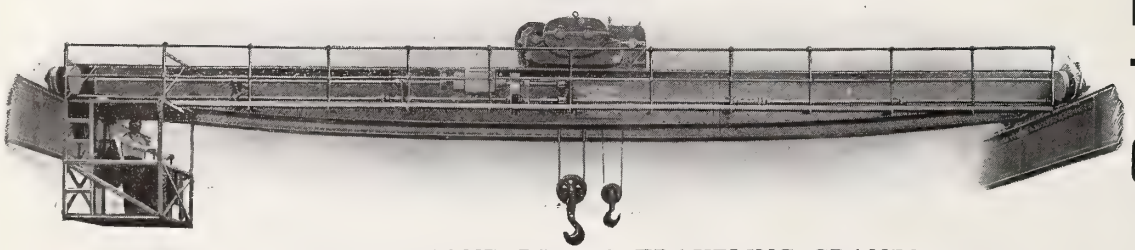
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BRASS AND BRONZE WORK
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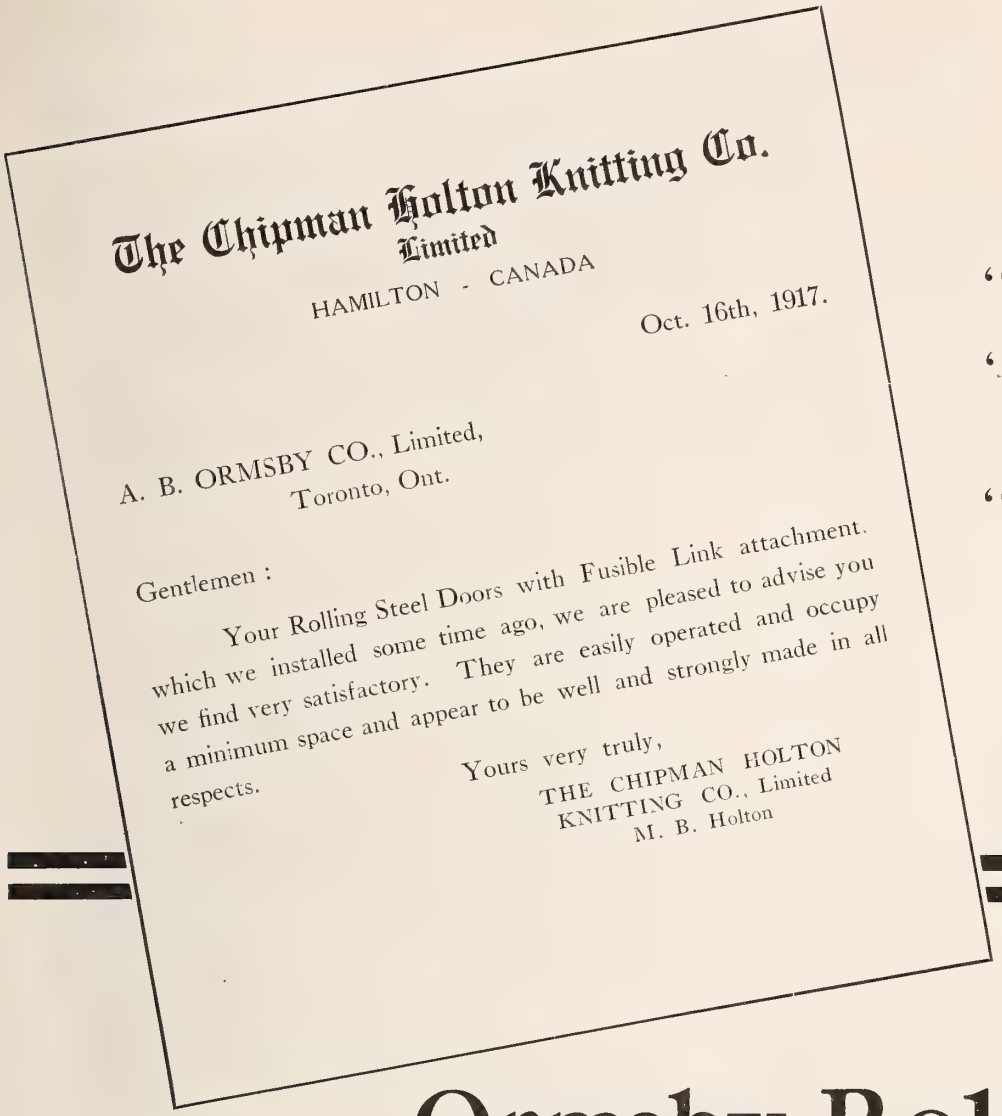
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HAND POWER TRAVELING CRANES
ELECTRIC HOISTS, AIR HOISTS, FOUNDRY EQUIPMENT

Northern Crane Works, Limited - - - - Walkerville, Ontario



The Chipman Holton Knitting Co.
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HAMILTON - CANADA

Oct. 16th, 1917.

A. B. ORMSBY CO., Limited,
Toronto, Ont.

Gentlemen :

Your Rolling Steel Doors with Fusible Link attachment, which we installed some time ago, we are pleased to advise you we find very satisfactory. They are easily operated and occupy a minimum space and appear to be well and strongly made in all respects.

Yours very truly,
THE CHIPMAN HOLTON
KNITTING CO., Limited
M. B. Holton

"easily operated"

"occupy minimum space"

"appear well and strongly made"

Ormsby Rolling Steel Fire-Doors

Satisfaction—absolute satisfaction—is the report we get on every installation of the Rolling Fire-Doors.

For these doors roll up like a window-blind. Strong springs counterbalance the weight of the door. Unlike ordinary doors, they require no sliding room, nor swinging space. They fit awkward corners. When open, all the space they occupy is about 14 ins. overhead and 3 ins. at the sides. Many an opening that other doors could not close can be protected with Ormsby Rolling Steel Doors.

Go through your plant with the insurance man. Find out what reductions in premiums a few of these doors will effect. Consult any architect or contractor as to their merits. Or let us refer you to our customers, some of whom have installed over 50 Ormsby Rolling Fire-Doors.

Full information, specifications, etc., will be sent on request.

Agents : — F. A. Gillis Co., Limited, Halifax, N.S. ; D. A. Cummings, Brockville ; M. J. Skelly, Ottawa, Ont. ; A. T. Chambers, Vancouver.

A. B. ORMSBY & CO., LIMITED - TORONTO, ONTARIO

Associated with The Metal Shingle & Siding Co., Limited

Factories at Preston, Toronto, Montreal Saskatoon, Calgary, Winnipeg



Now is the Time to Use

REINFORCED CONCRETE

Says Cass Gilbert, the New York architect:

"There are hundreds of buildings erected every year which could be just as well erected without steel, and in hundreds of others the amount of steel could be greatly reduced. An enormous tonnage could be saved if **reinforced concrete,** masonry or other material were used. Practically all buildings of moderate height can be erected without the use of large quantities of structural steel. **Reinforced concrete** or old-fashioned masonry can take its place."

Under present conditions reinforced concrete is particularly desirable. All the materials — portland cement, sand, pebbles or crushed stone—are staple products, most of them obtainable near by. Reinforced concrete is made with ordinary labor under skilled supervision. Concrete contractors have developed rapid and efficient methods of construction. There are many engineers, architects and contractors who specialize in reinforced concrete construction. If necessary, we can help you get in touch with them.

CONSIDER THE ADVANTAGES OF CONCRETE—

Fireproof	***Verminproof***	***Rigid***
Durable	***Sanitary***	***Rapidly Built***
Weatherproof	***Easily Waterproofed***	***No Repairs***

Reinforced concrete is used to-day more generally than ever before. The smallest job on the farm and the largest engineering works are built of reinforced concrete. Use reinforced concrete to build that factory, foundry, shop, warehouse, bridge, tank or reservoir for storing liquids, coal pocket, ore bin, grain elevator, garage—any building you are planning.

Trussed Concrete Steel Co.

of Canada, Limited

Walkerville, Ontario

MONTREAL TORONTO WINNIPEG CALGARY VANCOUVER

Truscon BUILDING PRODUCTS for modern permanent fireproof construction cover Reinforced Concrete in all its phases; Steel Sash of every type; Metal Lath and Hy-Rib for plaster and stucco; Spot Grounds; Waterproofings; Concrete Highway Reinforcement, etc.

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Engineers and Contractors

Branch Office:
BANK OF COMMERCE BLDG.
Windsor, Ont.

Head Office:
701 CONFEDERATION LIFE BLDG.
Toronto, Ont.

List of Work Done During 1917

Building	*Owner*	*Location*	*Approx. Value*
Packing Case Building	Peters Cartridge Co.	Kings Mills, Ohio	$170,000.00
Shooting Gallery	" " "	" " "	45,000.00
Coal Conveyor	" " "	" " "	12,000.00
Extensions to Plant	Ford Motor Co.	Ford, Ont.	240,000.00
Reinforced Concrete Bridge	Canadian Pacific Railway	North Toronto	175,000.00
Freight Shed	" " "	Lambton, Ont.	11,000.00
Additions to Factory	Nicholson File Co.	Port Hope, Ont.	58,000.00
Power Development Work	Hydro-Electric Power Com.	Big Chute, Severn R.	21,000.00
Extensions to Transformer House, Power Lines, etc.	" " " "	Niagara Falls, Ont.	83,000.00
Addition to Residence	G. M. McGregor	Windsor, Ont.	14,000.00
Addition to Factory	Canadian Lamp & Stamping Co.	Ford, Ont.	21,000.00
Addition to Factory	Kelsey Wheel Co.	Windsor, Ont.	2,000.00
Completion of Collegiate Institute Building	Board of Education	" "	75,000.00
Alterations in Plant	Harris Abattoir Co.	West Toronto	3,500.00
Extensions to Plant	Dominion Forge & Stamping Co.	Ford, Ont.	90,000.00
Alterations to Plant	Canadian Salt Co.	Windsor, Ont.	10,000.00
		Total	$1,030,500.00

Of this total $660,000.00 worth of work was done on a percentage basis.

Every one of the above contracts was obtained, because we had previously given satisfaction on other contracts for the same owners.

We please others. We can please you if given an opportunity.

WELLS AND GRAY LIMITED

John V. Gray Construction Co., Ltd.

GENERAL CONTRACTORS

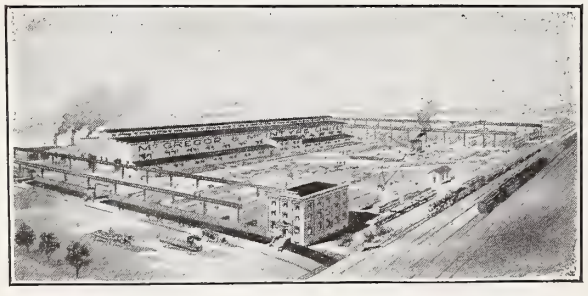
625 Confederation Life Bldg.
TORONTO, ONT.

Repeat Contracts, 1917

Swift Canadian Co., Ltd., Toronto
Gunns Limited, Toronto
Canadian National Carbon Co., Ltd., Toronto
Canadian Fairbanks Morse Co., Ltd., Toronto
International Harvester Co., Ltd., Chatham

Our Aim—Satisfactory Service.

STRUCTURAL STEEL
and
BRIDGE BUILDERS



We build and erect all kinds of Structural Steel, Bridges, Roof Trusses, Bank and Office Railings, Stair Work, Elevator Grills, Fire Escapes, etc.

Over 5,000 Tons in Stock of
Beams, Column Sections, Angles, Tees, Plates, Bars, Checkered Floor Plates, etc.

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1139 SHAW ST. TORONTO, CAN.

Standard Clay Products Limited

MANUFACTURERS OF

Salt Glazed, Vitrified Sewer and Culvert Pipes

4 inch to 30 inch

Square and Round Flue Linings, Inverts, Building Blocks

Fire Clay Stove and Range Bricks, Locomotive Arch Blocks

And All Shapes in Fire Clay

FACTORIES AT
ST. JOHNS, P.Q., and NEW GLASGOW, N.S.

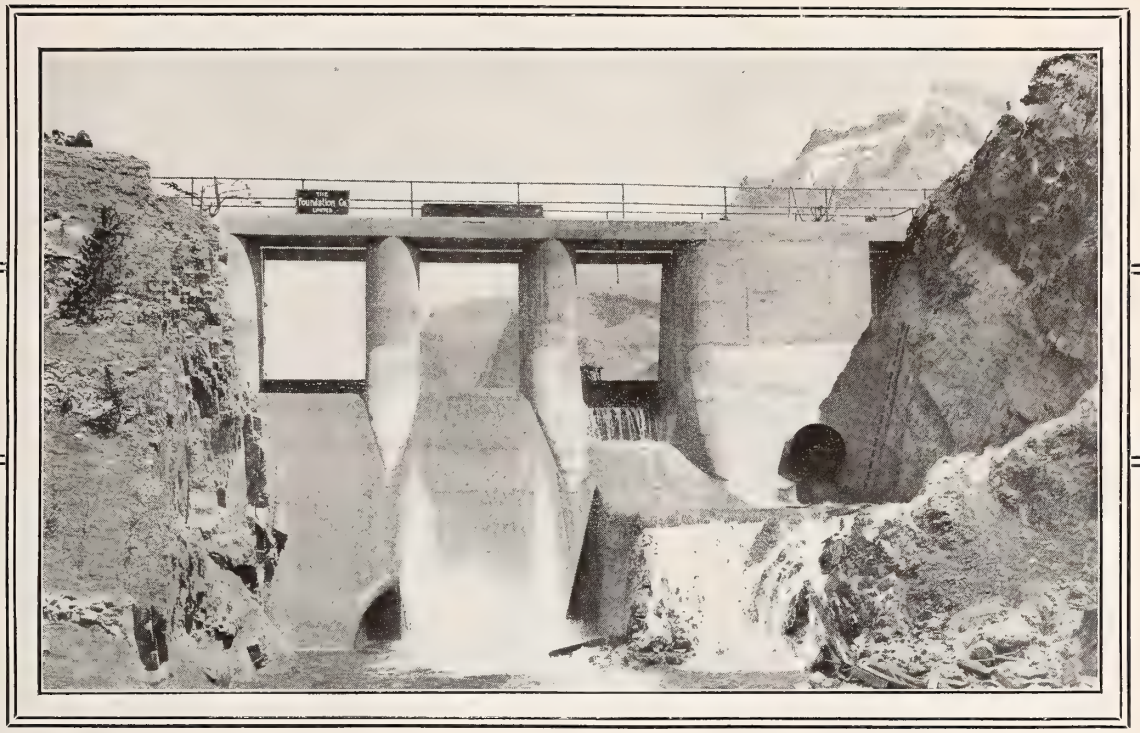
GILLIES BROS. Limited

LUMBER MANUFACTURERS

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WHITE PINE - RED PINE - SPRUCE

Established 1873



Water Power Development

We are in a position to handle both Engineering and Construction on any kind of a proposition relating to Water Power Development.

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We would be pleased to assist any manufacturer who may have some such proposition in mind; and we would suggest that our assistance might be the means of formulating a definite policy which would satisfactorily meet all the requirements of the owner.

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Limited

ENGINEERS, CONTRACTORS MONTREAL, WINNIPEG



QUALITY LUMBER
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"BEAVER BRAND" White Cedar Shingles are equally famous in Canada for uniform good quality and full count.

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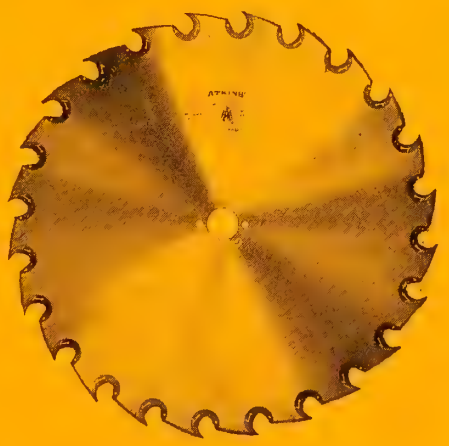






Assurance of the best results, both economic and productive, is found in the constant use of **Atkins Sterling Quality Saws.**

Steel of exceptional quality — that never varies — and the best workmanship has perfected these universally used saws.



Are your results as good as they should be? Try **Atkins Saws** and watch the improvement.

Send for our "C.L." Catalog containing items of interest to you.



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"WORLD" LOCOMOTIVE FITTINGS

Pop Safety Valves

Muffled or Plain

MUFFLED



Every Part and Piece is interchangeable and all made to gauge.

None genuine without the "WORLD" trade-mark cast on body.

High Pressure Whistles

Chime or Plain

CHIME



"World" Pop Safety Valves are fitted with our special Adjustment Ring, which enables the valves to be instantly adjusted, and never sticks. These valves are the standard for locomotives everywhere.

"World" Chime Whistles have a rich, full tone of strong carrying power, and are perfectly tuned. With Patent Balanced Valve. Few parts, and nothing to stick or get out of order.

T. McAVITY & SONS, LIMITED

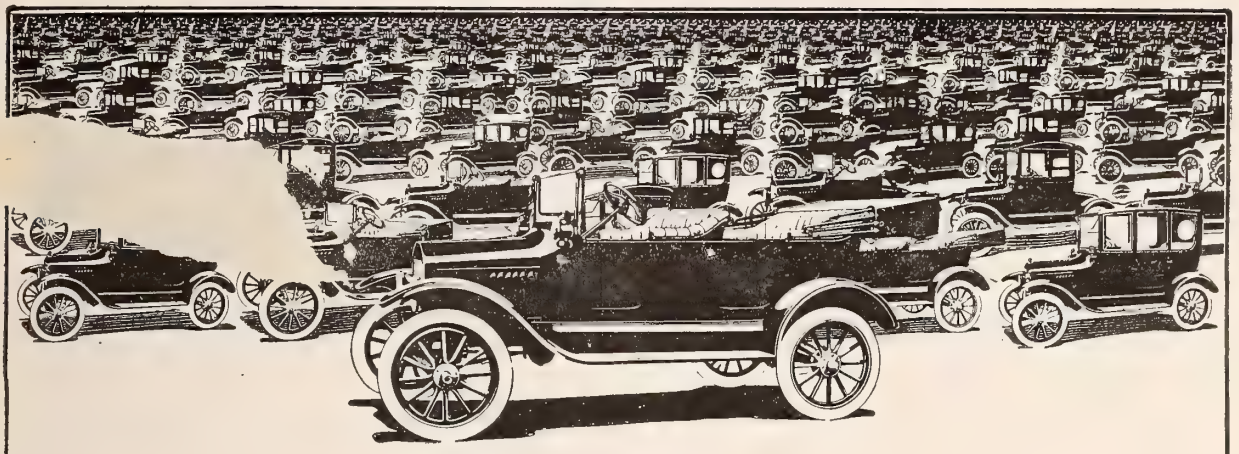
HARDWARE AND METAL MERCHANTS BRASS AND IRON FOUNDERS

ST. JOHN, N.B., CANADA

Established 1834

MONTREAL WINNIPEG

Cable Address, "McAvity, St. John." Codes ABC, 4th and 5th Editions



Over Two Million

MORE than two million Ford cars have been made and sold, and more than 140,000 of this vast number have been "Made in Canada".

The Ford enjoys the largest sale of any motor car, because it represents the greatest motor car value. Its name has always stood for low cost, and the car has everywhere given satisfactory service.

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Every third car in Canada today is a Ford. The judgment and decision of 2,000,000 satisfied Ford owners should convince you that the Ford is a superior car, and equal to your needs.

Ford

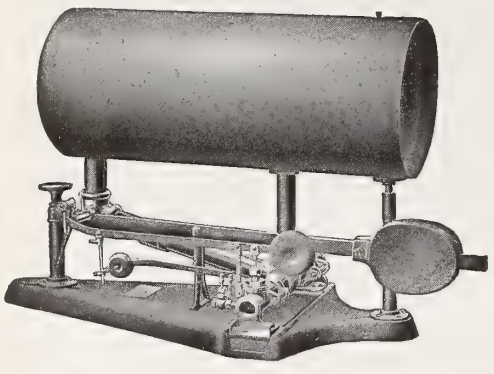
THE UNIVERSAL CAR

Touring - -	$495
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Coupe - -	$770
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One-ton Truck	$750

F. O. B. FORD, ONT.

Ford Motor Company of Canada, Limited

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Every Institution using steam for Heating, Cooking or Drying needs the

Morehead
Back to Boiler
SYSTEM

WHETHER your proposition is large or small, the Morehead System will save you coal, keep the Heating, Cooking or Drying apparatus drained of all water, work steam heated machinery at full capacity and feed your boilers distilled water at a high temperature. The Morehead System will take every ounce of accumulated condensation from the steam system and ***return it direct to the boiler*** while hot — automatically—wastelessly—90% cheaper and 100° to 150° hotter than a pump can do it.

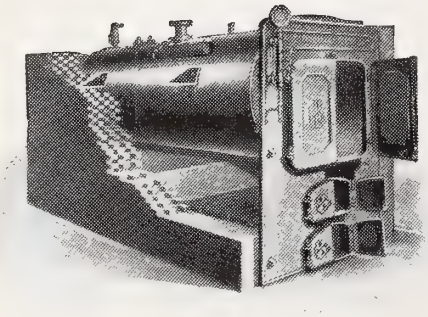
More Steam for Less Coal

Write for "Back-to-Boiler" Literature

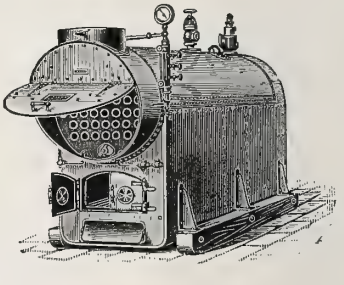
If you are having trouble with heating or want to install a better method of handling condensation, tell us of your troubles, and we will give you the best expert advice without its costing one cent. Don't delay this chance to save. Write us to-day.

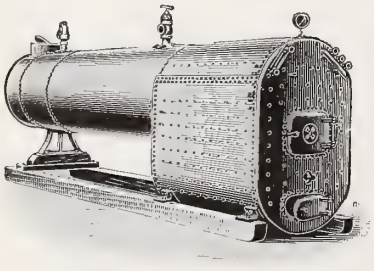
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Dept. "K" Woodstock, Ontario, Canada 294

E. Leonard & Sons, Limited
LONDON . . ONTARIO



Manufacturers of
BOILERS
ENGINES
of all types and sizes





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Goods the Best **Prices Right**

The prices will be higher on account of the increasing cost of raw materials and labour.

Our works have been enlarged and, assuming we are able to get raw materials, we are in much better position to cater to the requirements of our customers.

All orders, large or small, will receive our careful and prompt attention.

Works:
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Shawinigan Falls
Que.

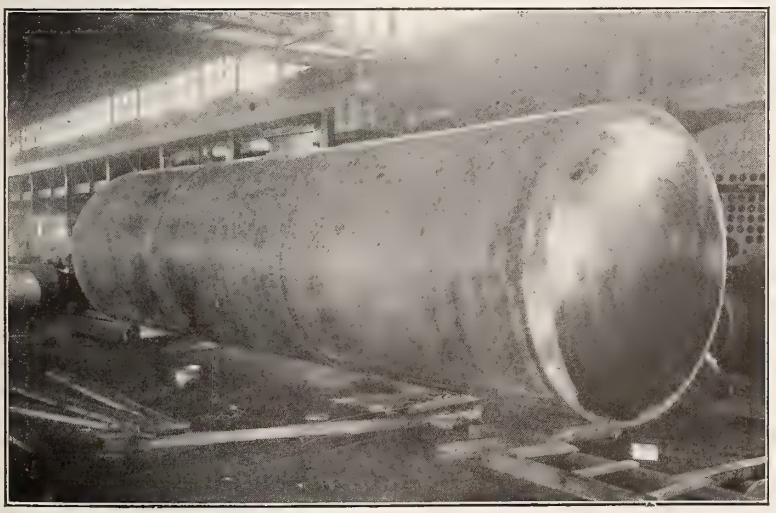
Canada Carbide Company, Limited

MONTREAL - CANADA

Steel Tank 35 ft. x 15 ft. all Welded

BY

OXY-ACETYLENE PROCESS



Courtesy: Jenckes Machine Co., St. Catharines, Ont.

The innumerable uses to which the Oxy-Acetylene Process may be profitably applied render it absolutely necessary in all Industries where running machinery is employed. All over the world Oxy-Acetylene Welding is rapidly superseding riveting, overlapping, brazing and threaded unions because of its greater Efficiency, Economy and Durability.

THE PROCESS HAS THE SAME ADVANTAGES FOR YOU

If you have any doubt on the subject, ask us for further information and proof. We are in the very best position to tell you of its benefits to YOU, and give efficient Service after you are convinced.

The savings effected are incomparably greater than the cost.

For the reclamation of broken machinery parts and castings, an Oxy-Acetylene Welding Outfit is an indispensable adjunct to every well-equipped Plant, often saving its total cost the first time it is used.
Write to-day for particulars—your interest will be appreciated.

The Pioneers of the Process **L'AIR LIQUIDE SOCIETY** **Factories the World Over**

Canadian Factories: TORONTO MONTREAL WINNIPEG HALIFAX, Factory under construction

"BEATTY"



Material Handling Plant has back of it 55 years of successful experience.

HOISTING ENGINES
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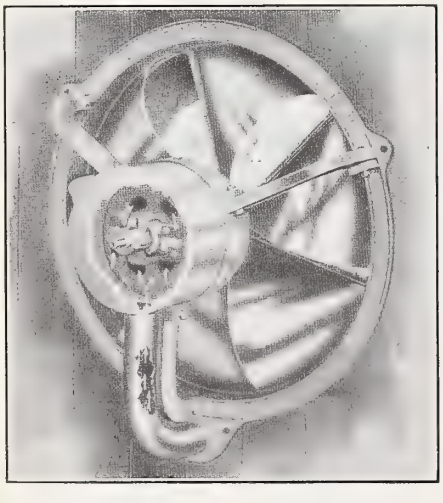
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Horizontal and Water Tube Type Stacks, Tanks, Water Flumes.

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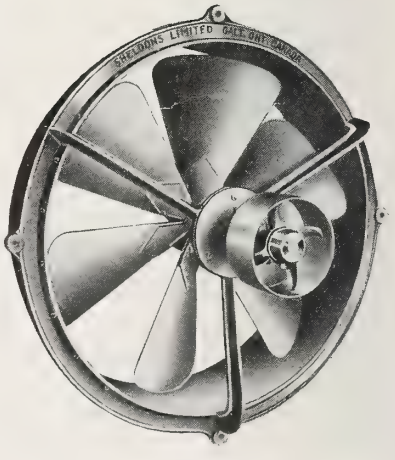
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Electric Driven Propeller Fan with totally enclosed dust-proof motor. For any current.

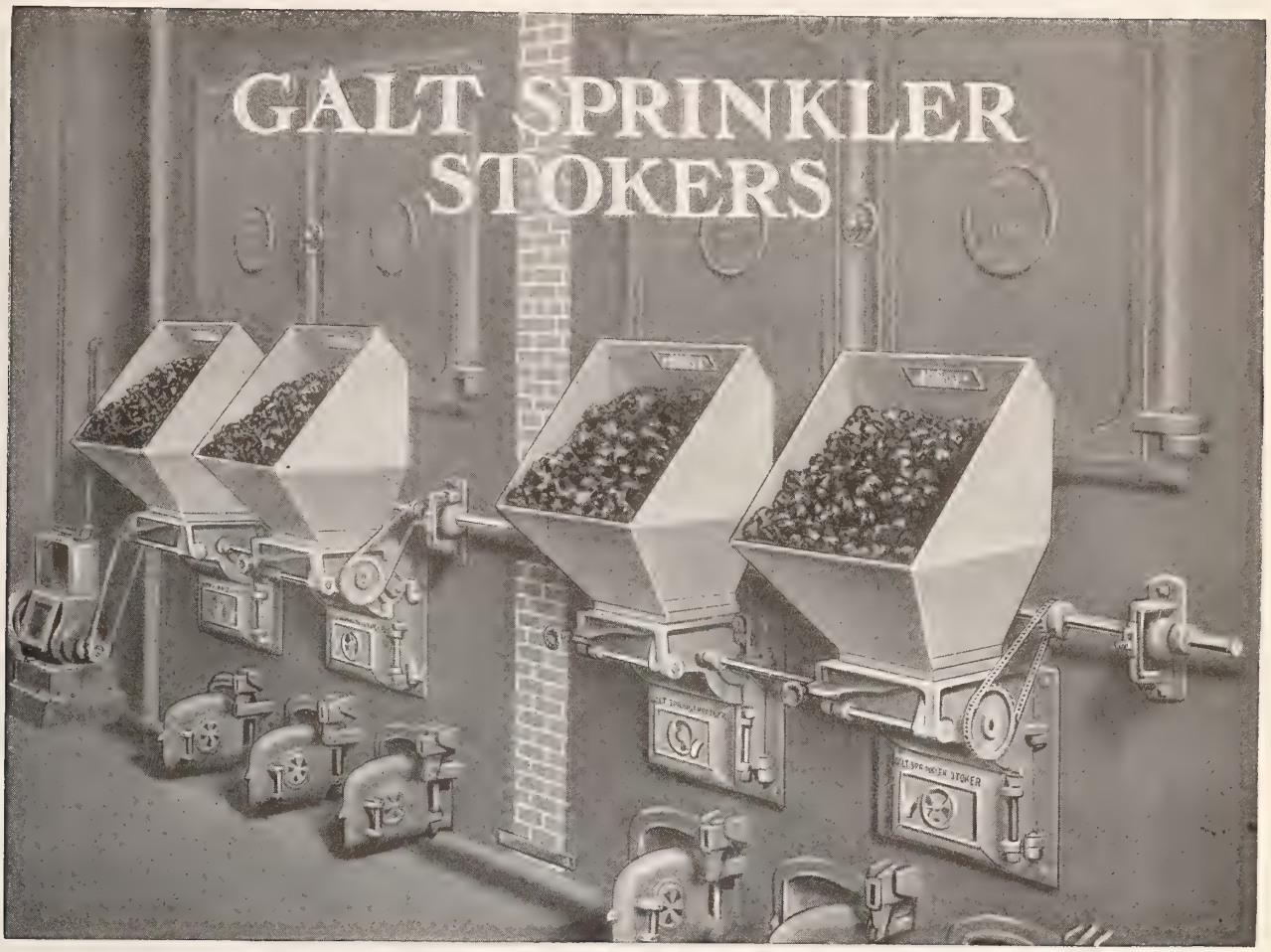
Do you remember last summer with its sweltering temperatures? Be prepared this year. Make provision for your requirements now. Our ventilating fans will relieve the situation. Write for our Bulletin No. 50.



Pulley Driven Disc Fan. Made in sizes from 18 inches to 96 inches in diameter.

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SALES OFFICES:
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Galt Sprinkler Stokers Applied to Two 300 H.P. Water Tube Boilers

AUTHENTIC INFORMATION

FROM A MOST RELIABLE SOURCE which should convince YOU that

GALT SPRINKLER STOKERS DO REALLY SAVE COAL.

ONE OF THE LARGEST ENGINEERING FIRMS IN CANADA have just had their mechanical engineers test the economical efficiency of the Galt Sprinkler Stoker in their own power plant and have placed a further order with us to equip the whole of their boilers with our machines. The above Company writes us :

> "We beg to state that we have compared the two tests made on our 250 H.P. water tube boiler before and after your stoker was installed and find that **THE NET GAIN IS 13%.** This saving is sufficient to warrant us in ordering the balance of the stokers (8) and we would advise you to go ahead and have them shipped as soon as possible."

SHOULD THE SAVING OF COAL INTEREST YOU WRITE US NOW.

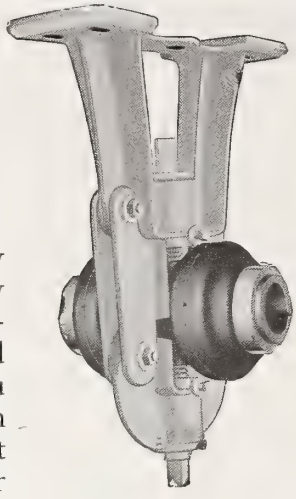
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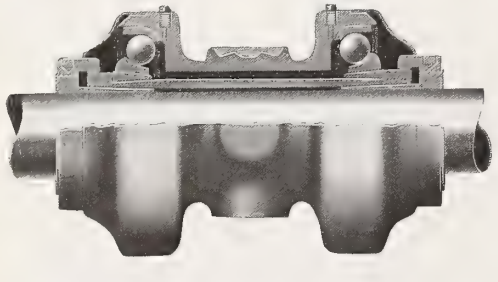


You have probably invested in Victory Bonds, and contributed to the Red Cross. Perhaps you are economizing in many ways also; but there is still another way to help—save power.

Chapman Double Ball Bearings

save 20 per cent. of power by eliminating friction. If you are wasting power in transmission, you are wasting coal—one of the articles the Government requests us to conserve.

It is not necessary to shut down your plant to install Chapman Bearings. They are interchangeable with self-oiling bearings of the same shaft size, and power is not the only thing they save.



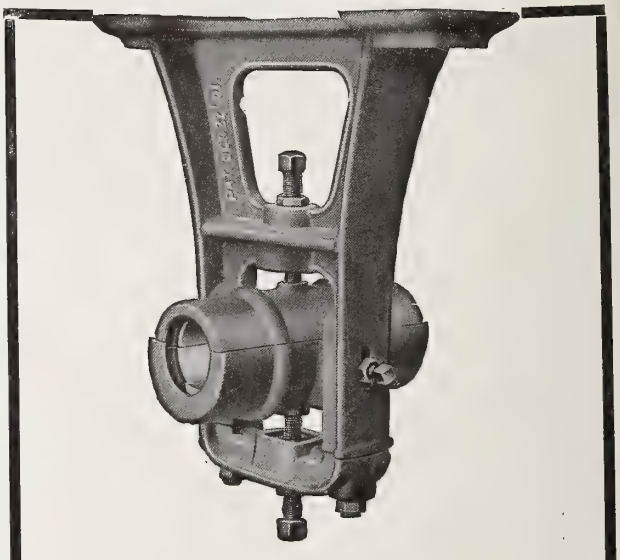
Let Us Tell You More About Them

CHAPMAN DOUBLE BALL BEARING CO., Limited

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Transmission Ball Bearing Co., Inc.
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Equip your next new line of shafting with Bond Hangers and compare the cost of maintenance with any other line of shafting in your plant.

You will find the ring-oiling device saves oil, yet provides ample lubrication at all times.

When erecting the hangers note how easy and handy they are to put up.

The feature of Bond Design that makes erection easy also provides universal adjustment. Keeping your boxes in constant alignment eliminates wear.

Send for the Hanger Book.

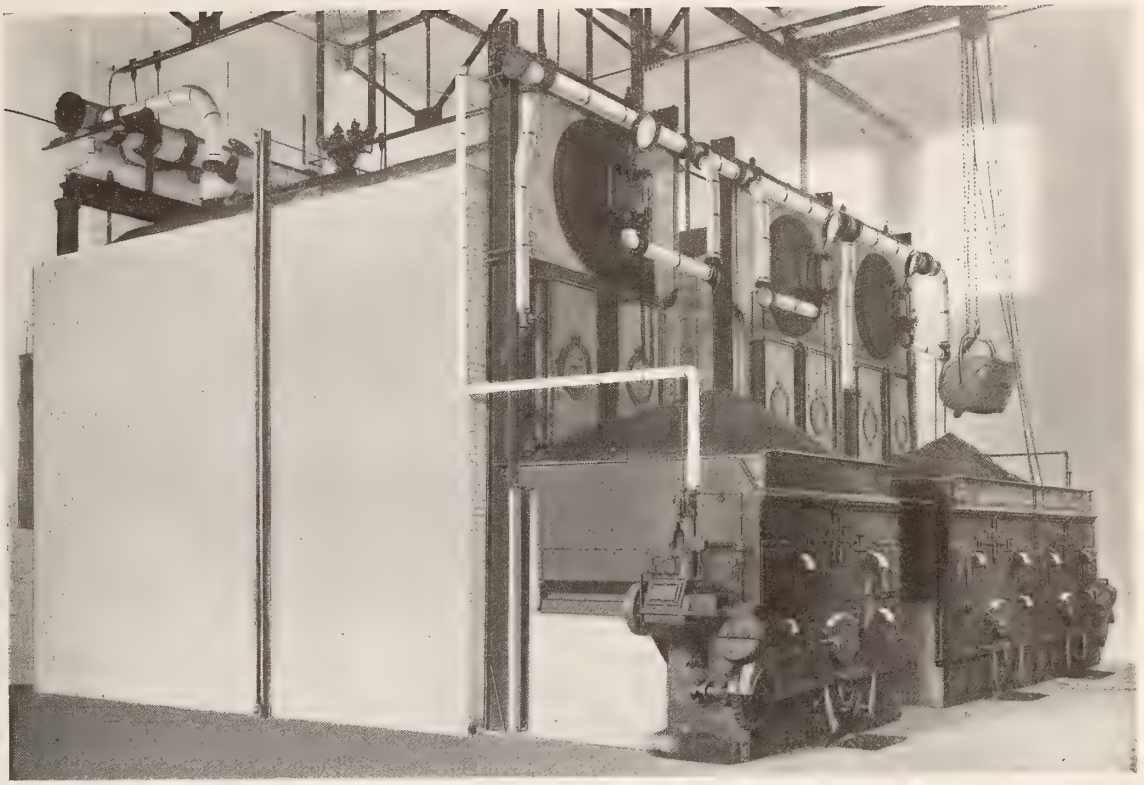


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BUILT TO MEET YOUR OWN REQUIREMENTS



The Boiler Room of The Robson Leather Co., Ltd., at Oshawa, Ont. Equipped with three G. & McC. Co. Single Drum Type "B" Sectional Water Tube Boilers

G. & McC. Co. Engines and Boilers

will provide your plant with

A Continuous and Economical Service

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We shall be glad to supply Photographs, Catalogues, etc., on request.
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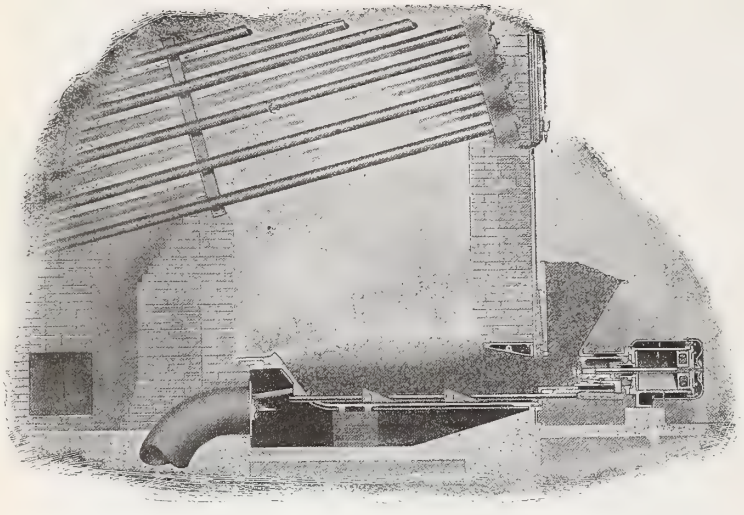
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Made in Canada

The JONES Underfeed Stoker

Used the World Over



WHEREVER there is a steam power plant there is a need for the Jones Underfeed Stoker. Coal fed into a boiler fire in the ordinary way means imperfect combustion of costly fuel. Fed by the Jones, all heat units in the fuel are utilized. An immediate and permanent result that comes from the installation of a Jones Underfeed Stoker, is a saving running from 15 to 25 per cent. according to the grade of coal used. Think of it! As much as one ton in every four saved. Can you afford to be without Jones Underfeed Stokers under your boilers when they make such savings possible? Isn't it worth a postage stamp and 3 minutes of your stenographer's time to get full particulars and ample proof? Write us for descriptive booklet—it will be sent by return mail upon request.

Jones Underfeed Stoker Co., Limited

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Are designed for every class of service where packing is required in power plants and on locomotives and steamships.

They have been the accepted standard of the world for more than thirty years.

In the manufacture of our packings we have steadily insisted upon the best of everything in material, design and workmanship.

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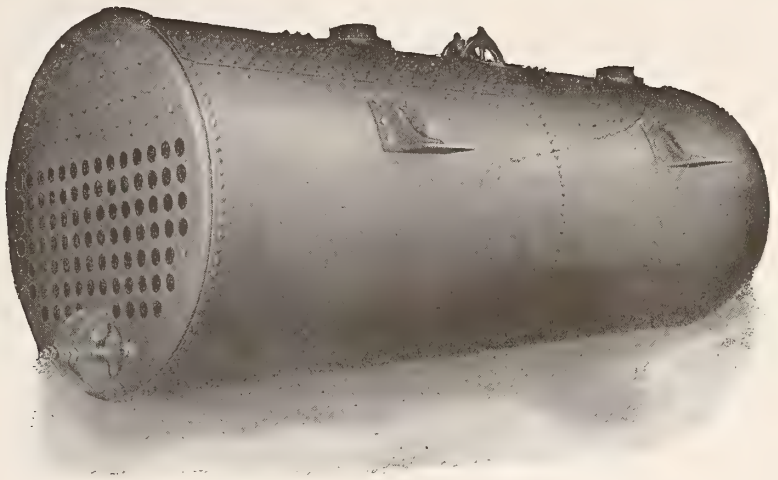
We are exclusive packing manufacturers—we make nothing else.

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We make boilers of all kinds for any service.

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The large number of pleased and satisfied owners of "INGLIS" Boilers is our best advertisement.

For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

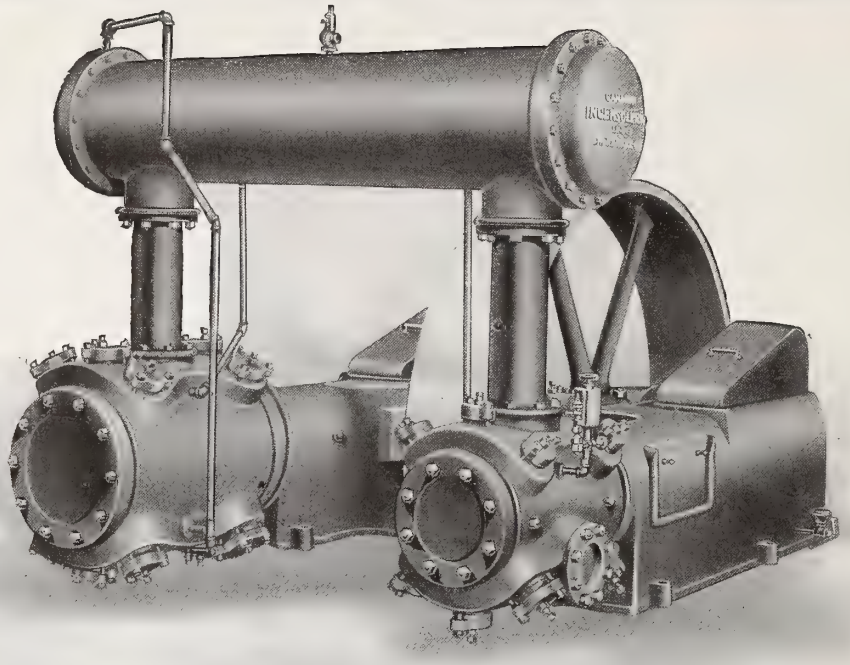
INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

The John Inglis Company, Limited

ENGINEERS AND BOILERMAKERS

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Class "PLB—2", Cross Compound, Power-Driven Air Compressor, equipped with "Circo" Silent Leaf Inlet and Outlet Valves, Enclosed Dust-Proof Frames and Flood Lubrication System.

Duplex Two-Stage Air Compressors

POWER-DRIVEN

The machine shown in the cut possesses the superior economy of the two-stage type combined with the advantages of duplex construction.

Its simplicity and compactness are evident, yet easy accessibility to all parts has not been sacrificed in any way.

There is no part which cannot be reached in a moment for examination or adjustment.

Lubrication has had thorough attention in the design of this machine. The "bath" or "flood" system adopted, means great simplicity and the use of oil in exact proportion to the needs of the machine.

In the course of a year the saving in oil is very marked when compared with cup lubrication.

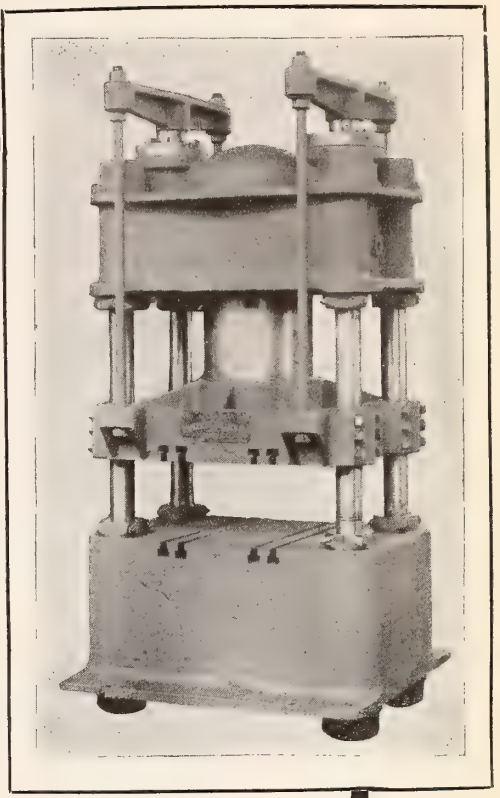
Let us send you Bulletin K-301-A which describes this type of machine fully.

We shall be glad to submit specifications and estimates for any compressed air equipment you may wish to consider.

Canadian Ingersoll-Rand Co., Limited

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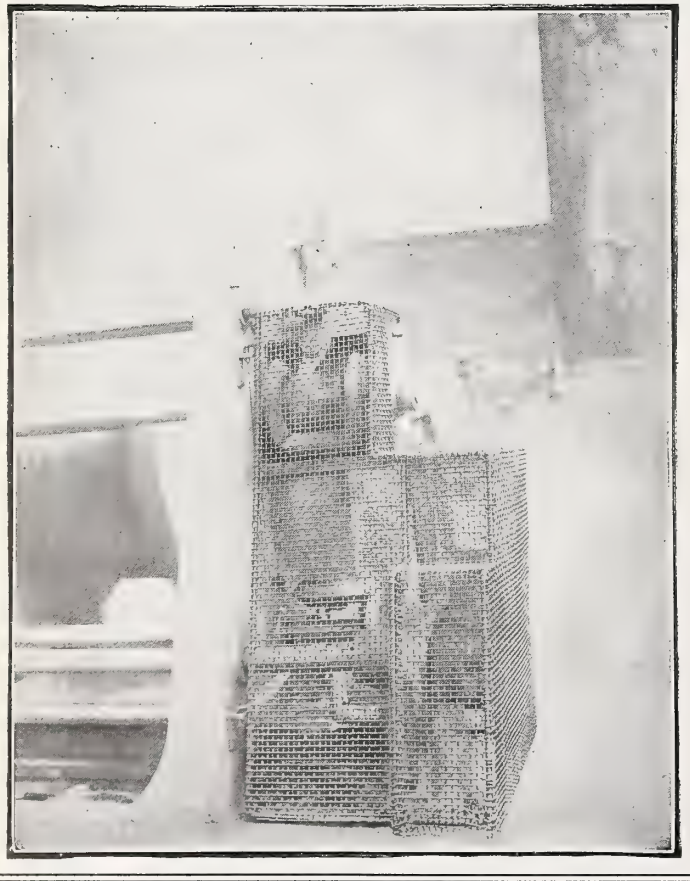
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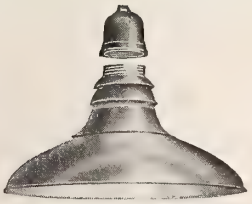
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For General Illumination. Wide Light Distribution with the elimination of glare. Designed for use in Mills, Foundries, Machine Shops, Factories, Textile Mills, Sewing Rooms and large areas requiring bright General Illumination. The smaller sizes for Localized Lighting of Looms, Work Benches, Sporting Tables, etc.



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For Localized Lighting and where economy in current consumption may be effected by hanging smaller units nearer the working plane. For Work Benches, Lathes, Presses, Shapers, Looms, Sewing and Knitting Machines, etc.



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For Offices, Drafting Rooms, Show Rooms, etc., in Industrial Plants, Public Buildings, Business Houses, Stores, Residences where diffused lighting can be used to advantage.

There is a

Wheeler Reflector

for every purpose of Industrial Illumination and an experience of nearly forty years in the manufacture and application of reflectors to ensure efficient service.

The design is scientifically correct, the reflecting surface perfect, the accessory parts substantially built for service under the most severe operating conditions, and skilled engineers will tell you how to use them.



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Angle Reflector for lighting vertical planes such as large signs; for lighting horizontal planes from the side walls where moving cranes prevent lighting from units hung above; for protection of grounds around industrial plants; for outside tennis courts and other recreation grounds.



Diffusing Globe Fixtures

Fixtures with Diffusing Globes used in Armories, Public Halls, Corridors of Public Buildings, in front of Business Houses, Theatres, and along thoroughfares for purposes of Decorative Lighting.

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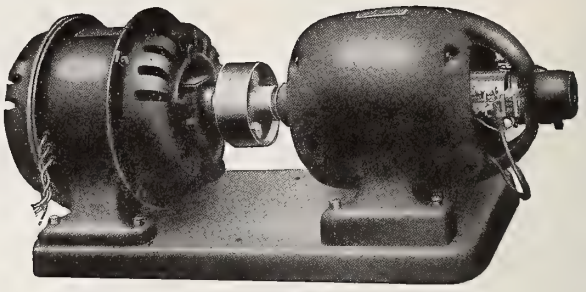
Cable Terminals
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For detailed information, samples, estimates or prices write our nearest office.

Standard Underground Cable Co. of Canada, Ltd.

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Montreal, Que. Toronto, Ont. Seattle, Wash.



Motor Generator for Charging Batteries

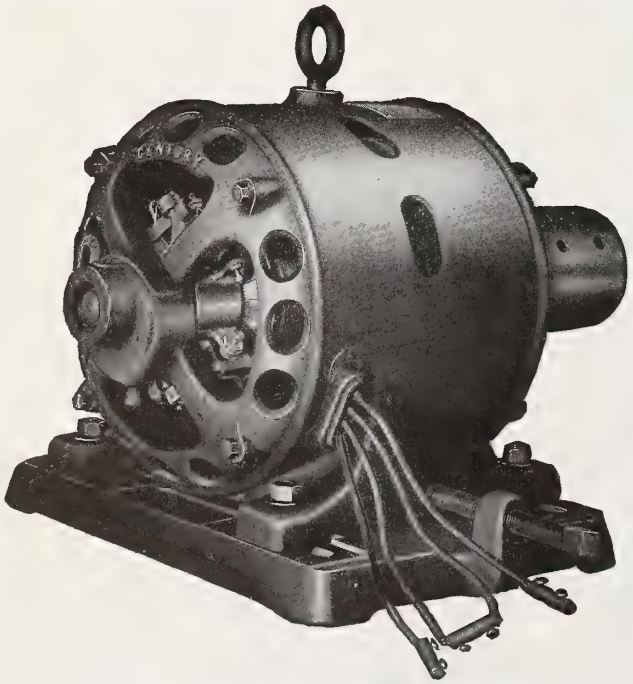
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Canadian Hart Wheels

CUT FASTER LAST LONGER
Than any other wheels on the market

Tell us the service you want performed and we will supply you with an abraser that will save you time, money and worry.

Send for one of our catalogues and tell us your troubles. We do the rest. :: :: :: :: ::

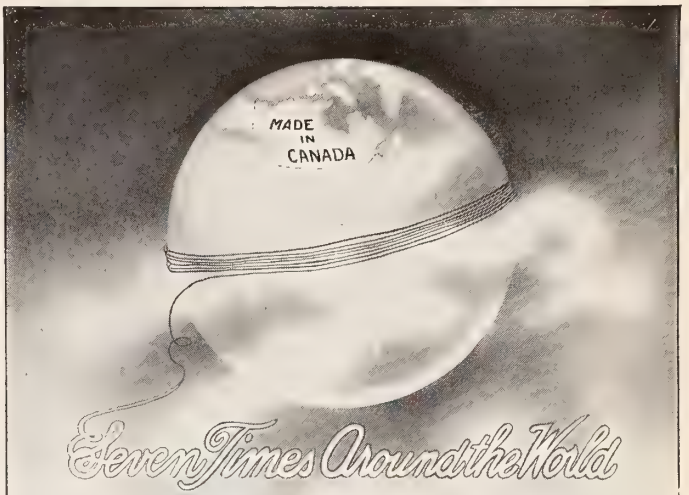
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There is but one absolutely safe method of wiring. Install a CONDUIT SYSTEM — it will eliminate all risk of Fire.

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Over 600 miles of Lead-covered Telephone Cable was the output of our plant for one year.

The single telephone wire in this cable amounted to nearly a billion feet or enough to encircle the earth at the Equator more than seven times.

The supremacy of the Northern Electric Company as the largest makers of bare and insulated wires and cables for all purposes has never been questioned.

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Unequalled manufacturing and shipping facilities insure prompt deliveries



The Shipping Department is one of the largest and best equipped in Canada It can accommodate twenty two freight cars

The famous "Drop-Out" Renewal Link can be had only in

ECONOMY renewable FUSES

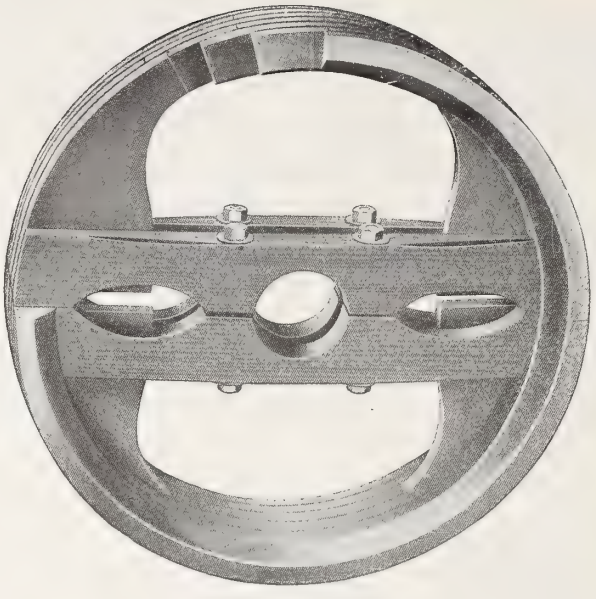
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We are pioneers in the manufacture of renewable fuses. We have blazed the trail and staked our claims. The vital features of renewable fuse efficiency are protected by Economy basic patents. Imitations are by no means duplications.

Sole manufacturers of "Arkless"—the Fuse with the 100 per cent. Indicator. For circuits not subject to frequent overloads this is the logical fuse. This and the Economy together meet ***all*** fuse requirements.

Be prepared to handle the business that our extensive consumer advertising will bring to you. Write for Catalog 40 and free samples.

Economy Fuse & Mfg. Co. of Canada, Limited
UNITY BUILDING, MONTREAL



FAIRBANKS WOOD SPLIT PULLEY

The Best on the Market
Made in Canada

The Fairbanks Wood Split Pulley is recognized everywhere as being the best designed and most carefully built Wood Split Pulley on the market.

The ***Rim*** is made of thoroughly seasoned bass wood, which gives the best belt surface.

The ***Arms and Rim*** are reinforced by sectors which form the strongest possible joint.

The ***entire pulley*** is protected by several coats of paint and varnish.

We are prepared to furnish either Wood or Steel Split Pulleys and will gladly make proper recommendations for your particular installation.

For any manufacturing equipment write our nearest house.

The Canadian Fairbanks-Morse Co., Limited

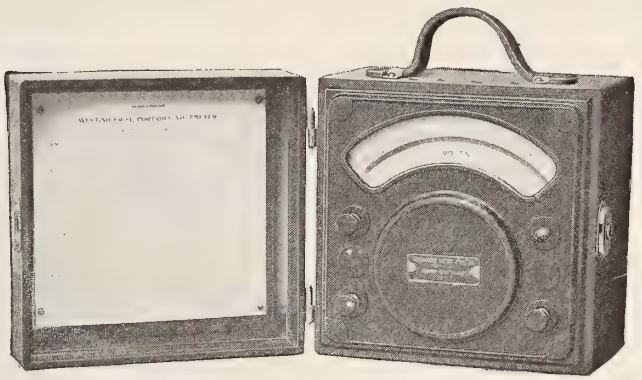
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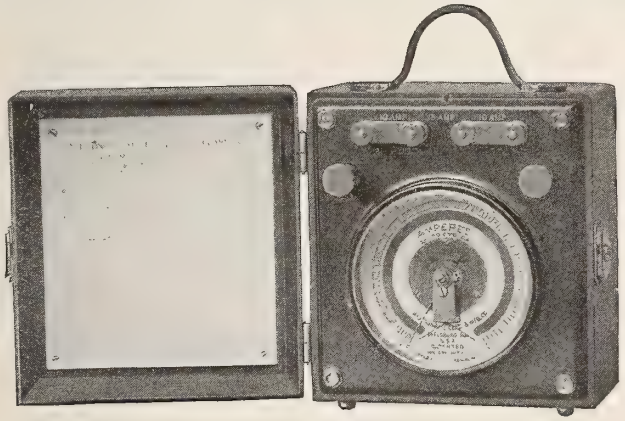
Westinghouse

Portable Testing Meters

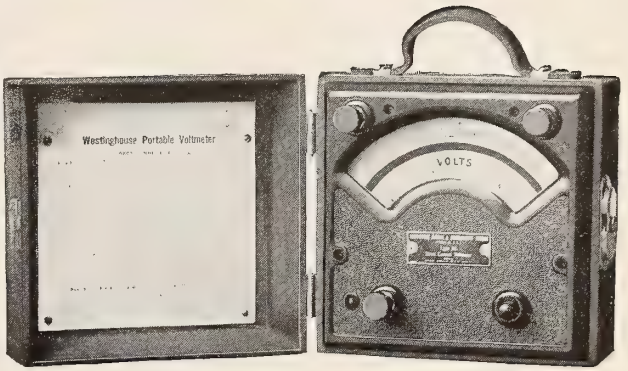
Accurate primary standards are the foundation of meter accuracy.



Portable Direct or Alternating Current Voltmeter



Portable Alternating-Current Ammeter



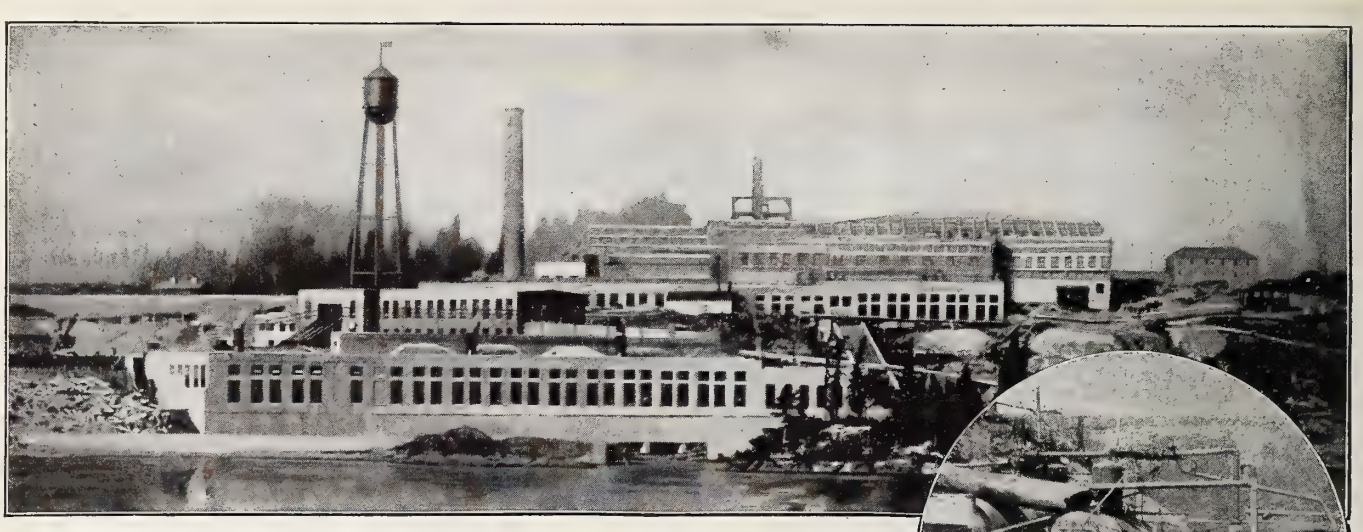
Portable Direct-Current Voltmeter

Westinghouse Portable Meters are accepted as the most dependable and accurate standards in their class.

Canadian Westinghouse Company, Limited, Hamilton, Ontario

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WINNIPEG, 158 Portage Ave. E. CALGARY, Grain Exchange Bldg. EDMONTON, 211 McLeod Bldg. VANCOUVER, Bank of Ottawa Bldg.



This Roof Helped Save 1600 Lives!

In the summer of 1916 a terrific fire swept 650 square miles of Ontario forests. It wiped out whole villages, bringing death and terror to thousands of people.

At Iroquois Falls the population of the town took refuge in the plant of the Abitibi Pulp & Paper Company, a modern building of reinforced concrete with steel window-sashes and a Barrett Specification Roof.

The building was wrapped in smoke and flame. The air was literally afire. Thousands of cords of wood in the adjacent yards blazed in the fierce sixty-mile-an-hour wind.

For nine hours they cowered there with windows and doors locked air-tight and fire-hose and sprinklers working, while the fire raged about them.

The insurance inspectors who arrived four days later stated in their official report that *the mill buildings were brought through undamaged.*

The roof was in good condition and is still on duty. It made an ideal, fire-proof, non-inflammable fire-blanket. Embers that fell upon it made the pitch soften and smoke but did not ignite it.

Surely this is proof positive that Barrett Specification Roofs have great fire-resisting properties.

But that is only *one* of their many points of superiority. Barrett Specification Roofs cost less per year of service than any other permanent roof; they cost nothing to maintain; they take the base rate of insurance and, further, they are guaranteed for twenty years as follows:

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.



The photos above, taken after the great fire had passed through Iroquois Falls, give some idea of the terrific heat all around the Abitibi Pulp & Paper Co. plant. Note the bent and twisted steel rails and frame-work.

Roofing Contrs.—Metal Shingle & Siding Co., Montreal.
Engineer—George F. Hardy, New York City.
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This Surety Bond will be issued by the United States Fidelity and Guaranty Company of Baltimore and will be furnished by us *without charge.* Our only requirements are that the roofing contractor shall be approved by us, and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

The Barrett Company LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.

Made in Canada

Barrett Specification Roofs Resist Fire

INDUSTRIAL CANADA

ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

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Pension Plan for Old Employees.

IT is a satisfaction to direct attention to the generous pension plan of the Canadian Consolidated Rubber Co., detailed particulars of which appear elsewhere in this number. When a manufacturing company goes out of its way to make provision for its employees when they reach old age, it is an evidence that big business is not the heartless and compassionless affair that so many critics would have it. We thoroughly believe that, if there were a better disposition to fall in with the plans of employers and give hearty co-operation, there would be more of these schemes in operation.

The Canadian Consolidated Rubber Co.'s plan strikes us as being both simple and comprehensive. All employees who have served twenty years or more are eligible for retirement on pension at the age of 65 for males and 60 for females, while at the discretion of the committee appointed to administer the pension fund, a male employee may be retired on pension at 60 and a female employee at 55. Provision is also made for pensions for employees of fifteen years standing, who may be totally disabled as a result of sickness or injury.

The scale of the pension to be paid is based on the average yearly wage for the ten years prior to retirement. Taking one per cent. of this wage and multiplying by the number of years employed, the amount may be readily computed. No pension, however, greater than $5,000 or less than $240 will be paid. Payment is made in monthly instalments on the first day of each month and continues until the death of the pensioner, or for three months thereafter when there is a widow or minor children.

An important point is that the company itself supplies and controls the fund, no contributions being required or received from employees. This we believe to be a proper arrangement, in that it safeguards against any disagreements that might arise where employees contribute.

We believe that readers of INDUSTRIAL CANADA will be much interested in this pension plan and will be curious to learn how it works out in practice. It is one of the first, if not actually the first, scheme of the kind put in force by a Canadian manufacturing company, and as such is bound to attract special attention.

Agents Defend Their Commissions.

A SPECIAL and probably final session of the Ontario Insurance Commission was held recently to enquire into the question of commission paid to agents on fire insurance. The Commissioner, Mr. Justice Masten, had formed the opinion that in many instances the agents received a considerable proportion of the premium, in return for which they rendered no adequate service. He, therefore, communicated with a large number of agents throughout the province, inviting them to give evidence before him showing cause why the rates of commission should not be reduced. A large number of agents accepted the invitation and, of course, spoke strongly against any action which would tend to reduce their income.

Apparently the Commissioner had principally in mind insurance on private dwellings on which high commissions of 25 per cent. and sometimes 30 per cent. are paid. The agent pointed out that this class of business is largely made up of very small premiums averaging between five and ten dollars. They claimed that, for the remuneration received

the agent was put to a great deal of trouble in delivering policies, collecting premiums and looking after removal and other endorsements. Attention was drawn to the similarity between this class of fire insurance and industrial life insurance. If it were not for active canvassing on the part of the agents very many householders would overlook the necessity for fire insurance, and perhaps be left destitute in the event of their goods and chattels being burned. On properties of greater value, such as manufacturing plants, the usual commission paid to agents and brokers is 15 per cent., and it was generally conceded that adequate services are usually rendered for this commission. One prominent Toronto broker submitted a lengthy statement in which he endeavored to prove that companies and brokers are the only useful members of the fire insurance community. Agents, sub-agents and, in most cases, general agents were, he said, merely parasites. Brokers, on the other hand, rendered services which were but poorly repaid by a commission of 15 per cent. They reduced rates, prevented misunderstandings by their care in drawing up contracts and constituted a very important factor in the reduction of fire waste.

Are We to Have Daylight Saving?

A LOT of schemes, which were regarded more or less as fads prior to the war, have since been adopted because their economic value was demonstrated by the pressure of war-time conditions. For instance, a good many people held that the temperance movement partook of the nature of a fad and were not inclined to support it because it appeared to them to be promoted by "faddists." But just as soon as the war demonstrated the economic value of prohibition, they dropped their opposition and fell in line with a movement which presently swept over the whole country with irresistible force.

Daylight saving is a proposition which was also regarded in many quarters as being a fad, and on the general principle of objecting to everything that was "faddy," opponents of its adoption rose up on every hand. We have not yet adopted the principle, but it must come, because we will be forced into it for economic reasons. The war has shown on what a very narrow margin the business fabric of the country is operating. It has been pitch and toss with the coal supply and we have had an intimation of what may occur should the slender margin between the available supply and our necessities be exceeded. We are every day face to face with transportation difficulties which are due to the crowding up of traffic towards the limit of facilities. A break-down in transmission lines might in a moment throw hundreds of industries out of business and delay production very seriously.

The lesson is obvious and that is that all possible means should be employed to enlarge the margin of safety. One possible means to this end is the widespread adoption of daylight saving. We are on the narrow edge with respect to food production. Daylight saving will give the workers in the aggregate hundreds of thousands of extra hours for home gardening. We are hard pressed for electric power. Daylight saving will conserve horse-power to an amazing extent. In these two respects alone, the scheme is well worth while. It is no longer a fad. It is becoming a grim necessity.

When tried out before in various isolated communities, serious objection was taken to daylight saving because of the confusion it created. Railway time, for one thing, could not be changed. There was a mix-up between the business of the daylight saving city and its neighbors. Altogether, the disadvantages outweighed the advantages and the idea was presently given up. But there can be no such objection, when the whole country, not to speak of the whole continent, moves back the clock. There will be a brief jolt as the change is made in the spring and another slight jolt when we return to standard time in the fall, but apart from this and a sense that we are getting more daylight during the hours we are out of bed, the difference will not be noticeable.

It is to be hoped that the Dominion Parliament will take prompt action at the forthcoming session and make it obligatory on the country to adhere to the daylight saving plan this summer. It will be another weapon in our hands to help defeat the enemy.

Our National Finances.

THE average citizen of Canada knows pitifully little about the nation's finances. As to what the country is spending, as to its receipts and as to its borrowings, most people are wrapped in profound ignorance. We simply take it that there is a Finance Department in charge of these matters and that it will attend to them as required.

Now, that is all wrong. There is no reason why the people should not know as much about the national accounting as about their private or business affairs, and just now when the country is carrying the tremendous and abnormal burden of war administration, it is particularly desirable that they should be fully posted on the income and outgo of the Dominion.

It is from no lack of a desire on the part of the treasury officials to give information that this condition of ignorance arises. The facts and figures are published regularly and are readily available to those who take the trouble to investigate. What is lacking, however, is an illuminating and entertaining method of presenting the

figures so that the public will become interested in the subject. Failing that, it is almost impossible to work up any enthusiasm for national finance as a theme in which the public generally are concerned.

As an attempt to popularize the subject, at least in so far as readers of Industrial Canada are concerned, the article which Mr. H. M. P. Eckhardt has prepared for this number and which appears on page 1533, will be found extremely useful. Mr. Eckhardt is one of Canada's best writers on financial themes and he has been following developments in national finance very closely. His explanation of the present and prospective condition of the financial situation at Ottawa places the whole subject very clearly before the reader, and those who take the trouble to peruse his contribution will be repaid with the knowledge that they know far more about how the country is financing its way than they did before. Manufacturers particularly should be masters of this important subject for important issues are involved in it, either directly or indirectly.

Mr. Eckhardt's article introduces a new department which will in future be a valuable department of Industrial Canada. We hope to continue to publish from month to month contributions of equal value and we will also refer to the financial statements of those industrial corporations which are accustomed to make public their balance sheets.

Concerning Watchmen.

THE prevalent and dangerous custom of employing a watchman merely with a view to fulfilling a warranty and without any consideration as to the value of his services, is dealt with by the National Board of Fire Underwriters in a manner which renders further comment unnecessary.

The subject of watchmen opens a big field for consideration. The prevailing custom among manufacturers, warehousemen and others is that of engaging as night watchman some superannuated employee who is no longer physically able to earn a workman's pay. Such a watchman may make his occasional rounds of clock stations in a purely mechanical way, but the amount of real protection which he furnishes, especially in war time, is very small. Generally he can be avoided with ridiculous ease by any one who is in the place with hostile intent. Or, if not avoided, his overpowering is a matter of little difficulty.

A test was recently carried out in a very large grain elevator, where inspectors were sent into a plant at night time, without the knowledge of the aged watchman. These inspectors spent six hours within the plant and made drawings of many of its important features, but their presence was never once detected. As a consequence the owners were given the alternative of engaging a sufficient number of young and vigorous guards or of having their plant taken over by the State authorities.

Watchmen are charged with extraordinary responsibility. They should be picked men, not derelicts. They should be intelligent, courageous and physically active. They should be sufficient in number to furnish real protection. They should be armed. They should receive special training for their important duties, and this training should include knowledge of fire alarms, fire prevention and fire protection. They should never be engaged except upon unmistakable evidence of character, and they should be paid the salaries that will command such qualifications.

In too many cases the service of night watchman, even in plants where considerable values are represented by goods and machinery essential to the pushing of the war, is regarded as rather perfunctory, and it is considered a sufficient check upon the watchman if he makes his rounds regularly.

Some manufacturers, however, perceive the advantage to be derived from having definite daily reports from their watchman, pertaining to particular fire hazards which might easily exist, but which might not be given particular attention unless the information is positively required by means of the filing of a regular report. One such schedule of questions requires data as to fire doors and shutters, fusible links, windows, gates, water faucets, rags, waste, inflammable liquids, lights, safes, call boxes, one extinguisher, steam and sprinkler pipes and valves, pressures on sprinkler gauges, etc.; also the names of parties in the building in the night, the time they were there and their occupation. Such a schedule is of great value in securing specific information as to conditions, and in impressing upon the watchman the necessity of observing conditions wherein danger might lurk.

Census-Taking Reforms.

RADICAL changes are being made both in the scope and method of taking Canada's census. In the course of an explanatory article in this issue, Mr. R. H. Coats, the chief census officer, gives an outline of what the Census Bureau hopes to accomplish under the new system. If the plans that are being made are carried through and the hoped-for results obtained, business men of the Dominion will be in the possession of much more complete information than has ever been available before.

The usefulness of census-taking is sometimes questioned and the expense involved in the undertaking is criticized. We believe, however, that no reasonable man will object to this national stock-taking any more than he would scout the necessity of a regular stock-taking in his own business. As one of the progressive young nations of the world we require that our growth in population, in resources and in productivity should be known. It is not only a source of satisfaction to the people of the Dominion to realize that the country is expanding, but it is good advertising. It helps national credit and draws new population to our borders. So let us welcome the evidence that the Census Bureau is alive to the need of doing its work in the most thorough manner.

War-Time Business and Profits

Vicious Tendencies Toward Business Life---Need of Fair Play---Farmers, Manufacturers and Other Producers and Their Products---Danger of Strangling Industry and Drying Up the Sources of Our Wealth---Taxation and Expansion---Unworthy Socialism

By S. R. PARSONS
President Canadian Manufacturers Association

"CANADIANS, let us know each other better—let us understand and sympathize with each other's problems—for in that knowledge lies increased production, good feeling between city and country, prosperity in reason and fair play for all," was the burden of a thoughtful and far-reaching address by Mr. S. R. Parsons, President Canadian Manufacturers Association, speaking, February 8, before a very large meeting of the Canadian Club of Orillia.

Continuing, Mr. Parsons said:

"It should surely be possible to discuss dispassionately, and with fairness to all interests, some present tendencies in our public mind toward the business life of the country. If ever we needed calm deliberation and clearness of vision, it is at the present critical time. We are all more or less on edge owing to war conditions, and in our anxiety that each individual or interest should play a worthy part, we too easily, and oftentimes with lack of knowledge through inexperience, strike at the other fellow or group. People are unsettled and out of sorts. The farmer denounces the Government, the railways, the manufacturer, and the storekeeper. The professional man, be he minister, doctor, lawyer, or what not, curses everybody within reach because war prices prevail, and seems to think all others are profiteers and sharks, holding him up at every turn. The manufacturer and merchant rail at conditions of labor, soaring pay rolls, shortage and tremendously increased costs of raw materials, Government and railway embargoes, increasing taxes, and threatened extinction of reasonable profits. The workers, notwithstanding heretofore unheard of wages, are aggravated at the figures they have to pay for all supplies, and therefore grumble at all and sundry.

"Tennyson tells us:

"'In wars of freedom and defence
The glory and grief of battle won or lost
Solders a race together.'

If so, the surface signs of unity of thought and purpose of working are certainly lacking in Canada.

City and Country in Same Boat

"One curious phrase of our disturbed mental condition is that it leads some people to believe that the good, fair-minded, honest folk for the most part live in the country, and all the opposite kind are to be found in the towns and cities and engaged in business life. This tendency was well illustrated recently in two editorials appearing in the same number of a religious weekly, published in Toronto. The one was headed 'Prosperous Farming,' and detailed with evident approval and satisfaction the case of a farmer in Saskatchewan, who last spring bought a section of land for which he agreed to pay over twenty-one thousand dollars, and upon which he made but a trifling payment. At the end of the year, the article stated, he had about twenty-five thousand dollars in returns for the wheat grown, or—to quote from the editorial—'more than enough to pay for the whole farm.'

"The other editorial, referring quite evidently to war-time commercial life and conditions, denounced the making of money in war time and condemned in unmeasured terms those who are heaping up profit at such a time as this. Now, to an average business man, it would appear that a little consideration should show that the farmer referred to made his enormous and extraordinary profit on account of war prices on wheat; in other words, if there is such a thing as a 'war profiteer,' surely this man was one, for profits anything like his upon the actual capital invested were never heard of in the making of munitions, the curing of bacon, or any other line; yet the farmer is commended and the manufacturer or trader condemned. Why? Is it any worse to make profits out of manufactured goods, or by other means, than out of wheat? Of course the case of this particular farmer was, no doubt, somewhat exceptional and perhaps seldom duplicated, but this surely is also equally true of a manufacturer or trader who makes abnormal profits.

The Farmer and His Buggy

"Another case in point along the line of the farmer more than holding his own as compared with the manufacturer, is well illustrated by a recent occurrence. A certain farmer desired to purchase a buggy, and, having used one that was in every way satisfactory, he went to the manufacturer and asked if another one could be supplied of the same kind. The manufacturer replied affirmatively, and the farmer asked the price, which was stated to be one hundred and eighty dollars. At this he held up his hands in holy horror and stated that his father had paid only eighty dollars for the buggy he was now using, and that he certainly would not pay any such outrageous figure for a new one. The manufacturer then looked up his records and stated to the farmer that it was quite true that his father had purchased the buggy at a price of eighty dollars. 'But,' said he, 'I find the record states that your father paid for this not in cash, but by giving me one hundred bushels of wheat. Now,' said the manufacturer, 'I will give you this new buggy for one hundred bushels of wheat, and in addition I will buy your wife a new dress and you a new suit of clothes.' This the farmer would not agree to, and the manufacturer's efforts to convince him that the price was fair, under present conditions, were unavailing.

Need be No Antagonisms

"Now, there should be no antagonism whatever between the farmer and the manufacturer or trader. They are all necessary to the country's well-being and prosperity, despite the erroneous impression of some people to the contrary, and it would be better if they exercised more confidence in and good-will towards each other. It should be a matter for congratulation if the farmers, manufacturers, mine owners and all other producers were prosperous. It is a belief held very widely by men of lengthened and varied experience that the average farmer in Canada, over a series of

years, makes as large a return upon his invested capital as does the average trader or manufacturer. One thing is certain, and that is that seldom does a farmer fail to make a living at all events. This cannot be said of many manufacturing and trading ventures, as farmers and other investors know to their sorrow. In this connection it is interesting to note the profits of the Grain Growers' Grain Company of Manitoba, and associated companies, from the Presidency of which Hon. Mr. Crerar, the capable and well-regarded Union Government Minister of Agriculture, has been drafted to serve his country at Ottawa. The total profits of the three concerns (which, according to newspaper reports, have recently amalgamated) handling grain, running elevators and stores, buying and selling live stock, coal, binder twine and other supplies, etc., for the year 1915-16 were over $1,800,000 on a capital, it is stated, of $2,000,000, which is equal to a 90 per cent. return. No doubt the profits of the new amalgamated company for the present year will be equally good, if not very much better. The huge profits made fortunately go into a great many hands, as the shareholders are numerous and are associated to some extent on a co-operative basis. This feature of the wide distribution of profits among numerous shareholders also characterizes many of our large industrials.

Productive Power is Vital

"It should never be forgotten for a moment that we could not exist as a nation if it were not for what we produce—what we grow, take out of the earth, make in various ways and sell at a profit. A few figures will indicate the chief sources of our wealth. For the year 1916 the estimated values of our main products were as undernoted:

Manufactured products	$1,621,000,000
Field crops	886,000,000
Animal products	303,000,000
Forest products	173,000,000
Minerals (unsmelted)	138,000,000

"The producer of minerals at Cobalt and elsewhere received the highest price on record for his silver on account of war conditions, and yet there was no outcry about inordinate profits. This is true of producers in other fields as well, outside of manufactured products. In a recent despatch from Ottawa, it is stated that the total catch of sea fish in Canada for the month of November realized a value of about double as compared with the same month one year ago, largely on account of higher prices being paid to the fishermen.

"*It is quite clear that this war is a contest of productive power—the power of the armies in the field backed by the power of men in fields, factories and elsewhere.*

"He certainly is very short-sighted who sees only the incomparable sacrifices our brave boys are making at the front, but overlooks the essential aid that producers and others at home are rendering in the great war. A graduate of Toronto University, a well-known editor, now an officer on active service in France, wrote the speaker recently, and magnanimously said: 'I often think that you in Canada, who are struggling to keep the country going, have a harder task than ours.'

Criticism of Manufacturers

"Now, in connection with the production of the lines enumerated there seems to be little criticism on the part of the public against prices obtained and profits made except in the matter of manufactured goods. It ought, however, to be remembered that in addition to the question of ethics involved in this criticism, Canada would have been in a deplorable condition, financially and commercially, without her great manufacturing industries during the war—aside altogether from the magnificent contribution to the war needs of the Allies. Nor should it be overlooked that in 1914-15 there were heavy losses in manufacturing, yet, notwithstanding this, employers were in most cases holding on to their men and obligating themselves in connection with those who recruited, besides contributing largely to all patriotic funds. Of course it is quite easy to understand that the farmers of the North-west or elsewhere can hardly object to a price being fixed for wheat that enables them to make such large profits—profits on a scale that they would take strong exception to if made in ordinary manufacturing. It should also be borne in mind that these high prices for farm products are sure to apply for some years—war or no war. The present prosperity of many manufacturers, though, will largely come to an end when war ceases.

Curbing Manufacturers' Profits

"Is it not possible, though, that the Government, in yielding to the popular cry for a curbing of the profits of manufacturing in one particular line, has been unfair and unwise in singling out any industry for its control? In limiting the profits of an industry to a maximum of eleven per cent., the question is, too, if it will not have the opposite effect to that desired? In the first place, such limitation is likely to do away with that initiative and ambition so necessary to the success of all undertakings. In the next place, as interest on investments, in general, bears from six to seven per cent., it would appear that a company having money in such an undertaking could only receive at the maximum four or five per cent. over and above what they could make in simply investing their means here and there within the channels of safety. Aside from the special risks involved in manufacturing, it is well known to all business men that four or five per cent. will not enable any rapidly expanding manufacturing company to properly extend its operations, provide for additional plant, larger stocks and higher values of raw and finished products, increased accounts receivable, and more working capital, all of which is essential. In this respect it is quite different from a financial institution that has its resources in a liquid form and whose working capital is largely supplied by a confiding public.

"A manufacturer, generally speaking, has very little, if any, cash, but has his assets spread over real estate, buildings, plant, book debts, materials finished and unfinished, etc., etc. Further, manufacturers in this country have no surplus of capital and, therefore, depend upon the banks for a line of credit to enable them to conduct their business through the busy seasons. Now, it is quite conceivable, in fact, altogether likely, that a company, limited as indicated, might go to a bank and ask for a line of credit, say a million or several million dollars, according to the capital, turnover, etc., to be used at a certain season or seasons of the year. A banker naturally would ascertain whether the company would be able, out of its sales and earnings, to pay back the money borrowed, in addition to providing for necessary expansion. If there was not a fair prospect of doing this, owing to Government or other limitations, the money would not be loaned and the business would thus be crippled or might even be ruined.

Big Profits, But No Cash

"Taking a hypothetical case, it is, therefore, probable that the 'sixty-nine per cent.' spoken of recently, which the Government think they will get back at the end of the year from a company said to be making eighty per cent. profits, could at best only be largely, if not wholly, in assets of one kind and another other than cash, and the Government would, in consequence, have to take stock in the company instead of getting cash out of it, or in the event of the latter would compel the company to liquidate. If winding up were not advisable or possible, the Government might very properly be called upon to assume its share of the liabilities which a growing and rapidly developing business forces upon the enterprise.

"This is no fancy picture, as any experienced manufacturer or banker will declare; in fact, confirmation is contained in a despatch from New York to the Toronto *Globe* of November 29th, telling of prosperous industrials being short of working capital to meet current bills, owing to present conditions, and omitting well-earned dividends, as well as trying to devise plans to borrow money to meet excess profits taxes. A very important consideration also is that conditions such as outlined above would, in turn, deprive farmers and other initial producers of a favorable market, such as they now have, for their products. It is officially admitted that limiting profits will make little, if any, reduction in prices. What is, perhaps, at present the most serious phase of this particular Government limitation is the fact that it is sure to limit the total output of packing house products at the very time when the world is crying out for them.

Tax Abnormal Profits

"It is a crucial question, therefore, to face as to what should be done on the one hand to maintain to the fullest extent all our producing interests, and on the other hand, especially in the times through which we are passing, to have these interests contribute properly to the enormous expenditure which the country is called upon to make. If industries, such as farming, manufacturing, mining, cattle raising, trading, financial institutions, insurance companies, etc., etc., are worth anything to the country at all, they should be strengthened and maintained to the fullest possible extent. *The Government, however, should tax extraordinary profits, wherever made, in a manner that, while providing needed revenues for the country, would neither destroy the incentive to effort nor deprive the business of these surplus profits with which alone legitimate and necessary expansion can be taken care of.*

"Of course, a huge and extraordinary turnover, even at a very reasonable and quite proper margin of profit, will in any year yield a specially large return upon the capital; on the other hand, a normal turnover at the same margin might show a small return or even a loss. It is often impossible to forecast the result. No manufacturer, farmer, or other producer, trader or speculator ought, however, to object to the Government taxing abnormal profits. There must, though, be a fair appreciation of the value of all industry and the fullest encouragement given to same. Further measures of taxation approaching confiscation—which are being advocated in some quarters, but mostly by irresponsible and immature writers and talkers—whether applied to manufacturing, agricultural, or other essential producing industries, will speedily destroy all enterprise and initiative and bring about chaotic conditions. It should never be overlooked that individuals or groups of men, whether engaged in manufacturing, farming, mining, trading, or any other line, cannot make profits for themselves without at the same time benefiting the country at large. The Finance Minister understands this perhaps better than anyone else.

"The question of moral obligation in connection with the proper use of holdings is not germane to this discussion, but in this regard manufacturers and other classes, in large numbers, have played a worthy part.

Expansion is Essential

"If ever there was a time when all kinds of industry should be reasonably stimulated and put in a shape to bring national prosperity, it is the present. This point of view is clearly set forth by Mr. C. W. Barron, publisher of the Philadelphia and Boston News Bureaus, and one of our foremost economists. It will be remembered that Mr. Barron was in Toronto during the first year of the war and delivered one of the sanest and most helpful addresses on war conditions and outlook that has ever been heard. On October 30th last, Mr. Barron, in referring to the enormous obligations the United States was undertaking in connection with the war, said, in part, in a carefully prepared statement:

"'All this borrowing to carry Uncle Sam's financial burden in the form of Liberty Loans is dangerous, unless assets in transportation and other public utilities and all investment fields are conserved and built up. In other words, earnings must be expanded and values must be built up in this country behind Uncle Sam and his Liberty Bonds. If it is decreed that this is inflation, the answer must be that contraction spells disaster, and we have contracted values in this country, especially in the transportation field, by many billions, and they should be promptly restored as the foundation of war loans and the prosperity necessary for a successful war. You *do not win wars with shrinking assets, but you do win them with expanding values—expanding values in all fields where live and work the heart and hand and brain of man.*

"'Let it not be forgotten that the two and one-half billions paid in taxes next year from this year's profits will be deducted from next year's earnings, and unless there are expanded profits and expanded values, our war finance will be on a dangerously contracting base.

"'The sooner a few wholesome truths are understood, both locally and nationally, the safer will be the cause of liberty throughout the world, for the United States and her credit resources, as well as her men and munitions, are to-day the reserve power for Liberty.

"'Economists figure that to properly sustain the continuous burdens of war our savings must be put up from six billions per annum to at least twelve billions per annum.

"'If we put Judge Gary's one hundred billions into the war we must prepare to raise the interest to pay the cost of the war loan.

Germany is Bankrupt To-day

"'Germany is bankrupt to-day because she promised to make Paris and London pay her war bills, and she is meeting the interest on her war loans, not from taxes or income, but from new borrowings. She is fighting the whole world for a gambler's stake of make or break.'

"The reference to Judge Gary's one hundred billions is a remark which the Judge made at the Japanese Commissioner's reception, stating that the United States could put one hundred billions into the war for human freedom. If these arguments are sound as applying to the United States, they surely apply with like force to Canada. *It would not be difficult to dry up the sources of our wealth.*

"Since Mr. Barron's article was published, it has been

announced that the United States Government has taken over the control of all the Railways in that country, thus securing to some extent the financial results aimed at in that portion of his statement concerning the Transportation Companies. From the purely monetary standpoint, if large savings can be effected through co-ordination and co-operation (a probable result) the country will benefit; if not, higher rates will have to be put into effect or the National Treasury be called upon to make up any loss.

Fair Play for Every Class

"It must be admitted that there are certain classes in our country who are neither farmers, manufacturers, miners, or other producers, traders, workers in munition or other factories, etc., to whom profits, high salaries, or increased wages do not apply. In some cases these classes are not getting their fair share of the fruits of prosperous years, which, unfortunately, are likely to be soon followed by leaner ones. It should, therefore, be the endeavor of all right thinking people to try and secure proper adjustments so that mutual helpfulness might prevail among all classes of the country, and injustices removed, and every man should get a square deal as far as this is possible. It appears, however, that what we are drifting into, perhaps unconsciously, is the cheapest form of unworthy socialism, which is chiefly concerned in tearing down that which is stable in the hope of getting some share of the plunder. The pendulum is swinging that way and if it goes too far, as it now promises, it will bring about a condition which is inimical to all virtue and honesty, worthy ambition and fair dealing between man and man. *If, individually, some of us cannot make money at present it is well to remember that the one who can is a valuable asset to his country in her present need, and that upon all of us rests a very serious national obligation not only to try and make but to save.* As citizens of a great commonwealth, destined to be much greater if we play our part like men, and remembering our obligations to the body politic, no matter what class we may belong to, we should be as much more concerned for what is right, straightforward, and of permanent value to the country at large than in trying to secure for any one interest or group that which is purely selfish or sectional. Should we not also in our discussions in private and on the platform, in the pulpit and the press, have a broader outlook based on larger knowledge of all great questions of production and trade, so vital to a new country, in order that we could thus deal with same on a non-partisan, less personal, but more logical and scientific basis? Unthinkingly we may help destroy that which is nationally indispensable, and in sowing the wind we shall reap the whirlwind.

A Winnipeg Development

Selling Company Formed to Handle the Product of the Manitoba Bridge and Iron Works

Important developments have recently occurred in connection with the business of the Manitoba Bridge and Iron Works. T. R. Deacon is the president of the Manitoba Bridge and during the past year a large business has been built up in the fabricating and sale of structural steel, transmission and convey machinery, and other lines.

This company has now made application for a Dominion charter with an authorized capital of a million dollars. The business of the company will be extended and developed to meet the increasing demands of the country, and new money will be employed in this connection.

The further announcement has been made by the company that there had been organized a related selling company which is known as the Manitoba Steel and Iron Company, Limited, and in which there are interested a number of the leading financial and business men of Winnipeg.

The new company will be the selling agent for the Manitoba Bridge Company. It is strongly financed and will carry on a general merchant business in heavy steel goods such as structural steel, plates and sheets, bar iron and steel, boiler tubes, rivets, bolts, railway supplies, mining equipment, heavy forging billets and stock for shipbuilding. An entire block of land with suitable warehouse has been secured on Logan Avenue, Winnipeg, with railway siding facilities, and business will be commenced on March 1. The business will be carried on along lines similar to the large steel and iron merchant businesses of the United States, contracts for large tonnages being made at one time with the rolling mills. Authority is also given under the charter to build and operate rolling mills and blast furnaces.

The Board of Directors of the new company consists of the following: T. R. Deacon, Sir Augustus Nanton, George F. Galt, George W. Allan, K.C., M.P., Sir Douglas Cameron, Charles Pope, Captain William Robinson, and W. H. Cross. T. R. Deacon is the president, H. B. Lyall the vice-president, and Walter Stuart the secretary.

Considerable interest will be taken in the statement that the new company will handle mining machinery. This may be taken to indicate the belief which prevails that mining in Manitoba may witness extraordinary developments in the next decade when the expected expansion occurs in the great northern fields.

West Indian Service

Steamer Will Run Alternately From St. John and Halifax Every Three Weeks

Although the regular schedule of the West Indies steamers is to be cancelled, and the boats placed on another route, states the *St. John Telegraph*, arrangements have been made by the R.M.S.P. Company, to provide a new service, that will, in some measure, make up for the loss of the regular trips.

It is proposed, by the company, to inaugurate a new service, between St. John, Halifax, and the West Indies. A steamer, under the new arrangement, will arrive at St. John and Halifax, alternately from the West Indies, every three weeks. The ship, on the St. John route, will go and come direct, and the vessel on the Halifax service, will, likewise, be a direct steamer. Canadian shippers are advised that they must place their goods either on the St. John or Halifax steamers.

The steamer *Caraquet*, now undergoing repairs, will be placed on the new schedule, while the steamers *Chignecto* and *Chaudiere*, will be taken off the old schedule, and placed in the trans-Atlantic lanes.

The announcement, that this arrangement has been made, will be greeted with not a little appreciation, by the fruit dealers in the Maritime Provinces, who, although having great difficulties in securing their normal stocks, had grave fears that their business would be, in a very large measure, curtailed by the cancellation of the old schedule, in its entirety. The new plan leaves, at least, a small avenue, by which these St. John men may continue to do business.

The Freight Car Shortage in Canada

Steps That Are Being Taken by the Railway War Board to Relieve the Pressure and Which Have Resulted in a Great Improvement in the Conditions Under Which Freight is Moved in Canada

By B. B. COOKE

Statistician, Canadian Railway Association for National Defence

I.

OBVIOUSLY, without concentrated production and wide distribution the world would freeze to death, starve to death, die of exposure, or of all three! Without the freight car modern production and distribution would be impossible. Your product may be cheap and good. Your salesman may be a world-beater. Your bank manager may sit up nights trying to think of means to force more money into your hands. Your advertising may outglare the glaringest and outsubtle the subtlest. But still your business will trot along only as fast as you can get freight cars to carry it. The gait of the freight car is the gait of the nation's commerce. Its shabby walls contain the current wealth of the community. The arbiter of the destiny of manufacturers, of cities, of nations and empires, is often that docile porter, grumbling along at the heels of a locomotive.

An eastern Canadian pulp and paper mill saw its storage space filling up with product for which it had insufficient cars—saw a day coming when it would have to shut down for want of a place to put its products and its best customers closing their factories for lack of raw material. Shippers of grain, salt and plumbago, cheese, lumber, hats and potatoes, prayed in vain to railway companies!—the freight car alone could answer them. Canadian and American industries have been on the brink of heavy losses or disaster; some during the past two years have had to give way to the more necessary trades, through temporary lack of *freight cars!*

A Case in Point.

To the private office of a large shipper comes his sales manager, red in the face, excited, waving a telegram.

"Look here, Mr. Beldevon," he says, "here's final notice from the X Y Z Company—if we can't deliver nine cars by the twenty-second, they'll have to shut down. Means they'll be penalized on those contracts. Means we lose the account—account that took us *five years* to land!"

The general manager reads the wire.

"By the Lord! and no cars yet?"

"Two delivered this morning."

"Two! Give me that 'phone. If you can't get any action from the railway, I *can!*" (To the switchboard operator): "Get me the Division Freight Agent of the ————."

The sales manager:

"You can't get 'em! They won't give them to us. They've got a pick on us."

"Hello! Division Freight Agent? Beldevon of the ——— speaking. What about those cars for us?"

You know what followed. Beldevon hints he will raise the devil at head offices of road if he doesn't get cars. Hints he believes there is a conspiracy to ruin his business; offers bribe; threatens to complain to the Dominion Railway Commission; going to have siding run in by the opposition line; transfer all business to that line. Listens!

And you know what the Division Freight Agent—or whoever he was—replied. Terribly sorry! Nobody ever was so sorry—or so helpless! He *would* try. Yes, really, honest to ———! Belevon hangs up. Next day gets four cars; next day, two; next day, seven. He has to be content with what the companies can give him. It is tragic. He loses orders—but nobody else gets 'em. He lives near apoplexy and his sales manager develops temperament and resigns twice a day. Both escape.

So long as Canadian freight cars keep moving, the trade of the country has a pulse. It lives and breathes. When the cars stop, or part of them stop, it is just the same as though a large round thumb had been pressed into the jugular vein of the nation.

II.

In the year before the war (1913) the freight business handled on the Canadian railways amounted to almost 107 million tons, at an average cost to the shipper of $1.67 per ton. Estimated in ton-miles it totalled over 23 billions—so that it may be seen the average ton received for its $1.67 a haul of 215.2 miles or about a mile and a quarter for a cent. The freight trains of Canada travelled that year more than 60 million miles, and the travels of loaded freight cars—which would be raised 33⅓ per cent. if "empties" were counted in—came to one billion and two hundred odd million miles.

That was the traffic. To carry it there were 182,221 cars, with a capacity of 5,856,885 tons—that is to say, if loaded once only they could carry that much. But as the average number of loadings per car that year was 30.9 times, it is obvious that the carrying capacity of the 1913 freight car equipment, as operated in 1913, was 30.9 times 5,865,885 tons, or 180,977,746 tons, as against 106,992,710 tons actually carried. Of course it is impossible to load all commodities to the full weight-carrying capacity of a car. There are some, such as wool, for example, which, while occupying full cubic capacity are still less in weight than the minimum such a car is supposed to carry. But the fact that roughly 74 million tons or 40 per cent. of the weight-carrying capacity was not used commands attention.

Some Statistics.

In 1916 the number of freight cars in Canada had grown from 182,221 to 201,614, an increase of 10.6 per cent. in numbers. The total capacity per single loading had risen from 5,856,885 to 6,762,056—an increase of 15.4 per cent. in capacity per single loading. But the average number of loadings had fallen from 30.9 to 25, so that the yearly carrying capacity of the Canadian freight equipment was only 25 times 6,762,056 or 169,051,400 tons, as against 109,659,088 actually carried, a theoretical waste of almost sixty million tons or 35 per cent. This apparent improvement over 1913's loss (40 per cent.) was an improvement only in one sense; each car in 1916 was better loaded—20.91 tons instead of 19.01 as in 1913, *but it was not loaded and unloaded as rapidly* as in 1913, as witness the fact that the monthly average of delays

chargeable to consignee was only 1.87 days in 1913, rising to 2.41 in 1916, the delays chargeable to the railways, which include delay for inclement weather, falling from 0.46 of a day in 1913 to 0.42 in 1916! Slower loading and unloading reduced the average number of loadings or trips per car per year. Had that average been as high as in 1913 the weight-carrying capacity of the cars would have been 202,861,680 tons, or roughly 93,000,000 tons over the actual tonnage carried—a loss of 46 per cent. The slowing-up in the loading and unloading of cars was undoubtedly due chiefly to labor shortage. The average load, as already pointed out, was higher, 20.91 tons instead of 19.01 tons, but not enough to account for the increased delay in handling.

The margin of theoretical waste in the weight-carrying capacity of cars has risen in the years between 1913 to 1916 from 40 per cent. of capacity to 46 per cent. of capacity and has kept the increase in actual facilities from being felt as it should have been felt. In spite of the fact that the numbers of cars out of service for repairs is lower than usual, and much lower than on the American railways (4 per cent. as against 6 per cent.), the percentage of car orders filled is still unsatisfactory. Cars are not handled by shippers and consignees as rapidly as in 1913, nor are they yet being filled as nearly full as is necessary. That is why shippers cannot expect to ship as easily as they did in 1913.

III.

There is probably no place in Canada where the complexities of the country's trade are more clearly focussed and readily understood than in the offices of the Canadian Railway Association for National Defence. Observing the traffic situation in Canada as it is reflected in that office, it is as though the Dominion of Canada were compressed within the rectangle of an office table, on whose top one saw here a group of factories pouring out material; here a group consuming it and turning out a different kind; here a mining district; there a munitions district; and on the edges, the ports where ships call for their cargoes, and on the southerly edge the gates into the United States. In such an office, or in the offices of the car distributing department of the railways, one can catch a glimpse of the work of the expert railroaders—the Canadian railroad men—than whom there are none better. Here also a war is being waged against the enemy, "Car Shortage."

The initial shock of the war reduced Canadian railway traffic to an extraordinary minimum. For the year preceding August, 1914, there had been a gradual slowing down of railway business, especially in the West. The collapse of the real estate boom and the cessation of much of the spending power of that part of Canada had depressed the freight traffic. In domestic traffic the first effect of the announcement of war was the falling off of carload shipments and the increase of L.C.L. (less than carload) consignments. In foreign traffic the first indication was a decline of 17 per cent. in the volume of imports for September, 1914. The volume of domestic traffic ebbed lower every day. Imports dropped millions per month up to the end of 1914. Export traffic rose and fell jerkily; while the car supply exceeded the demand, the situation was nevertheless complicated by the unevenness of traffic movement and the lack of return freights on the routes that were developing. The first provision against altered conditions was to send all foreign (American) cars home. Where there had been in June, 1912, as many as 17,000 foreign cars, this number fell like a plummet to 1,000 in September, 1914. The American freight car, which hitherto had done the bulk of the carrying between Canada and the United States, owing to the fact that we imported more from the United States than we sold there, became scarce. Goods were moved only in Canadian cars so that Canadian rolling sock might be kept employed. The surplus in Canada created a problem of stowage; cars were shunted into ballast siding tracks—anywhere to keep them out of the way. The railroads, it is true, became increasingly busy in the handling of troops and laborers from across the continent. But the freight business, which is the chief function of the railways after all, and their chief source of income, was at a low ebb.

IV.

A curious episode will serve to illustrate the ending of that period. On a certain section of a certain main line in Ontario the section foreman found every bolt head at every rail joint cut neatly off next to the plates. In other words, for a long distance, the rails were held to the ties only by their own weight. Scattered along this section of track were curious lengths of metal, apparently spilled from the last passing freight train. These, the section foreman in his wire to the division superintendent, said "look like car axles," and had apparently dragged in such a way before falling as to cut off the heads of the bolts on the sides of the rails.

The so-called "axles" were steel billets on their way to one of the first Canadian munition factories. This strange accident, due to the opening of a hopper bottom car in which the billets were carried, was one of the first things to draw attention of the railroad employees to a new traffic which was springing up in Canada.

Meantime, among the car distributing officials great changes in the currents of traffic were beginning to be observed. The period of idle cars approached its end. Every day, when the daily reports of scattered railway agents all over Canada came over the wires to the car superintendents, showing the cars ordered and the cars on hand, the balance of idle cars dwindled, and every day the main trend of the new traffic began to show itself. It was a trend from the south of raw materials for the munitions plants now springing up all over Canada. Hundreds of cars bearing thousands of tons of steel billets and other products were necessary to keep the Canadian munition factories busy. The American car reappeared in Canada in great numbers. This movement, in turn, begot a secondary movement between munition plants in Canada. The steel brought into Canada had to be moved, as a rule, five times; from the furnaces and rolling mills to the foundries, as billets; from the foundries to the forging plants; from the forging plants to the shell-makers and from the shell-makers to the filling plants. These processes took in such widely separated points as Hamilton, Winnipeg, Calgary, Welland, and to the loading mills in Quebec.

This was the first of the new traffic. It grew daily and added to itself other classes of war traffic, such as the carrying of remounts—a task which in 1916 amounted to 1,409 cars on one road alone and in 1917 (up to the time of writing, December 10th) to 2,220 cars on the same road. With the beginning of these movements the demand for cars became practically normal once more. Wheels were no longer idle. Freight yards were busy.

V.

But on top of this normal condition came complicating factors. The revival of business due to munitions trade led to a revival of the country's purchasing power. Instead of l.c.l. freights came an increase in carload orders for ordinary merchandise. Meantime the agents of the Entente were buying up the steamers on the Great Lakes and placing them in

overseas service. The vessels that were left made shorter runs, unloading and loading at Georgian Bay points instead of coming down into Erie and Ontario. A heavy cross-current of "Bay Ports" traffic sprang up. At the same time the coal-carrying vessels between Nova Scotia and Montreal were taken for other service, so that the railways must undertake the coal hauling trade not only westward from the Maritimes but also in greater bulk northward from the American mines. Their own suplies of coal, which had formerly been obtained fairly cheaply after paying water carriage, had now to be hauled overland and the *cars sent back empty*—an added cost. This situation developed in the spring of 1916, when most of the available boats had been removed from Canadian waters.

So great was the demand for cars for carrying coal that hundreds of cars had to be taken out of the sand, gravel and stone trade and altered so as to carry coal. Eight hundred and forty-three coal cars had to be hauled empty from British Columbia to meet the sudden shortage in the East. And finally, perhaps the most important factor of all was the growing overseas export trade. The tonnage moving to Canadian seaports grew heavier every day, doubling itself in a brief period of months.

Thus in the second stage of traffic adjustment following outbreak of hostilities, there were four outstanding changes: 1st, the heavy northbound traffic in raw materials for munition plants; 2nd, the heavy demand for coal cars at the mines; 3rd, the increased business from the Bay ports, and 4th, the increased overseas export trade.

VI.

Leave the second period of traffic adjustment there and consider its next stage, the stage in which it now exists. The growth of the volume of traffic to seaboard points is without parallel in the railroad history of Canada. Under the system installed by the "Director of Overseas Traffic," one of the ablest railroaders ever developed in any country, a minimum of car wastage was allowed in handling that traffic. Cars were not provided for any shipper except when it was known that they could be loaded, moved to seaboard, and unloaded into a waiting ship. Since that system went into effect no ship has sailed with anything less than a full cargo, and there has been a minimum of delay to cars. By the improvement of car loading methods the munitions-shippers made 1,000 cars do the work of 1,200—and yet the numbers required were and are colossal.

Four months ago came a change in car movements. The munitions business began to slow up. The northbound movement of steel products from the United States almost ceased. The American car did not cross to Canada so often. In place of the northbound traffic came a complete reversal in the current. The cutting off of Scandinavian supplies of paper threw the demand for pulp on the mills of Canada; exports which for August, 1914, were only a little over half a million dollars, doubled, trebled and quadrupled. The concentration of army horses in the United States created a still greater market for Canadian hay. The need for asbestos for industrial purposes in the United States sent the car demands of that trade from trifling numbers to 2,000 cars a year. Entirely new items of export from Canada to the United States appeared. One road alone handles now 500 cars per annum of chrome ore, used for a flux in American smelting operations. Another handles 1,500 cars a year of magnesite, required chiefly for the lining of open hearth furnaces in the United States. The demand for cars for pulpwood and hay cannot be met, and the orders for flat cars to carry shipbuilding timbers from British Columbia to Eastern Canadian points are impossible to fill.

To meet these extraordinary shiftings, reversals, growths and declines in the current of traffic has required foresight, resource and agility on the part of the men whose business it is to supervise car distribution. New cars go into circulation every day, but the fact that munition orders have right-of-way in car-building plants, and the scarcity of labor and materials combine to prevent enough being built to satisfy changing conditions. To centralize the efforts of the Canadian roads and to meet the American situation most efficiently the creation of the War Board of Canadian Railways (The Canadian Railway Association for National Defence) was highly opportune.

The last reverse of the traffic tide between this country and the United States left the United States roads with over 20,000 Canadian cars in their hands over and above the normal number counter-balanced by American cars in Canada. The American roads, owing to the acute car shortage in the United States, have apparently been extremely loath to yield these cars to Canada but are gradually doing so in co-operation with the War Board in Canada. Hundreds of Canadian cars return every week and under the direction of the War Board are being distributed, not according to ownership, but according to the traffic requirements of the country. In addition to this work of course the War Board is daily arranging for the exchange of cars from one Canadian road to another, so as to make a surplus on one road affect a shortage on another. Its achievements in reducing passenger train service and conserving fuel are functions which do not concern this article.

VII.

Such is the history of the changing traffic currents in Canada since the war—a bare outline of the operation of the machinery. The colossal struggles, the 24-hour sessions of railway executives, the crises that have been met and overcome when they seemed most nearly hopeless, cannot be recorded here. That conditions are no worse, that they continue to be better than in the United States, where multiple management has created multiple problems, is due to the industry, ability and public spirit of the Canadian railroad men.

DEATH OF J. S. N. DOUGALL.

J. S. N. Dougall, President of Dougall Varnish Co., Passes Away in Montreal.

After a three months' illness, James Samuel Niven Dougall, president of the Dougall Varnish Co., of Montreal, died, at his Montreal home, on Saturday, February 2.

Mr. Dougall was born in Montreal in 1853. His early education was received in Montreal, and that of his training for the work of his chosen calling was received while in the employ of McArthur, Corneill & Co., varnish manufacturers. He later became connected with this firm as a partner, and his connection covered a period of ten years. In the year 1892 he became a partner in the business of D. A. McCastill & Co., also varnish manufacturers, and continued with this firm until the formation of the present Dougall Varnish Co., continuing as president until his death. Among other organizations with which he was connected are: Commercial Travellers' Association, of which he was president on different occasions; Canadian Manufacturers' Ascociation, of which he was chairman, and member of the council of the Montreal Board of Trade.

Two sons survive Mr. Dougall: J. H., a member of the Dougall Varnish Co., and J. B., of the Canada Sugar Refineries. Two daughters, Mrs. Turnbull and Mrs. Matthewson, also survive.



A Battery of Adding Machines at Work in the Census Office at Ottawa

How Canada Will Take Census of Production

A Comprehensive Annual Survey of Crops, Live Stock, Dairying, Fisheries, Mining, Lumbering and General Manufactures

By R. H. COATS

Dominion Statistician and Controller of Census

THERE is no great need to emphasize the importance of production, especially in young countries where it is usually the sole source of the national income. Canada's future, economically, is peculiarly a matter of her production, for we went deeply into debt during 1900-1913 on what was essentially "equipment for production"—added to which is our war debt, an anodyne while we are spending it, but to be paid in hard earnings eventually. Hence there is no one question that calls more urgently for consideration in Canada than production—no subject, in other words, on which we have greater need for the accurate and comprehensive measurements that are furnished by an adequate system of statistics. Not, of course, that we must postpone investigation of other phenomena, more particularly our "man power" (hitherto much neglected), or our various social activities. But even these are determined to a degree by economic considerations; and production is certainly anterior to trade, finance, transportation and the like, which often bulk larger in statistical publications.

To organize a comprehensive scheme of production statistics is no mean task, for it will be seen at once that it involves the closest acquaintance with an extremely wide range of activity, including such sharply differentiated operations as the growing of crops, the rearing of herds, the raising of minerals, the catching of fish, the hewing of timber—each a world of itself—not to mention all those complex and interlocking subsidiary processes that go on in shops, mills and factories, in converting the raw materials thus won from nature into the multifarious forms in which they enter human consumption.

Naturally, our first statistics of production were those of certain Dominion and Provincial departments which have executive functions in different sections of this variegated field. The Mines Departments of the Provinces, for example, collect royalties upon or otherwise supervise the mining output, the process automatically yielding statistics. Similarly, Departments of Agriculture, Fisheries and Forestry came, in certain cases, to publish the statistics thrown off by or needed in their administrative activities.

But while much valuable information has been secured in this way, the statistics as a whole have not been satisfactory. Executive departments very properly adapt their methods to their executive needs, and as these often differ widely the applicability of the statistics for other than the immediate purpose is extremely limited. You cannot, for example, with safety compare a statistic of one Provincial Mines Department with the corresponding statistic of another. Still less can you collate the statistics of, say, a Mines and a Forestry Department; or a Fisheries and an Agricultural Department. Much overlapping has ensued: we have three independently collected and compiled totals of the bricks manufactured in Ontario in 1916. At the same time wide areas of the field have been left uncovered.

Again, for numerous phases common to all industrial processes, but falling outside the purview of such departments as have been mentioned (notably the problems surrounding capital and labor), we have had still another series of departments resurveying the field with their own purposes alone in view, and still other bodies, like the Conservation Commission and the Research Council, have also been at work

from still another standpoint. It is true that once in ten years a comprehensive census of industry has been taken by the Census and Statistics Office. But decennial statistics of production are only a little better than no statistics at all, and for other reasons that will be mentioned further on, the decennial census was never wholly successful with production. The remedy lies of course in unifying the system, by bringing all its parts within the scope of a single directing agency, making good deficiencies, eliminating differences —eliminating first of all the idea that good statistics can ever be obtained as a mere by-product of administration. Good statistics must be planned as an end in themselves and having in view all the purposes that statistics must serve.

General Outline of the New Organization.

As was just said, the decennial census recurs at too wide intervals to render it a suitable means of registering production. Another feature militates even more strongly against it. The *raison d'etre* of the decennial census is to enumerate the population. This is an enormous task (it has been said of the United States Census that it is the largest single administrative act of the Government), requiring machinery of a special character. Most of all it requires a very numerous field force, sufficient in fact to reach by personal contact, within about three weeks' time, every man, woman and child of the eight milions resident in Canada. When it has reached the individual, however, the questions are for the most part of a simple and non-technical kind, so that a low-waged enumerator may be employed.

Now, the organization demanded for a production census is of an almost diametrically opposite character. There are only forty or fifty thousand producing entities in Canada—outside of fishing and agriculture—so that a much more highly centralized staff may be employed. At the same time the information required is of a complex and technical character. To attempt to collect our data of mines and manufactures through the medium of the low-waged enumerators of the population census is to invite trouble from the beginning. The best such a census can accomplish (and this is all that it has accomplished in the past), is to illustrate the broad and general tendencies with which public policy must deal. It cannot illuminate details, and details are more and more demanded. In the case of agriculture the situation is different, and the Population Census and the final and definitive Census of Agriculture must always for obvious reasons be taken together.

Entirely New Machinery.

It has accordingly been decided to create entirely new machinery in the Census and Statistics Office for the treatment of statistics of production. The decennial census of the future will be in the main a census of population, whilst production will be covered on an annual basis by a distinct organization. This organization will proceed in the first instance by collaborating with the departments, Dominion and Provincial, having executive functions in specific sections of the field (there are over thirty of these), and by erecting independent machinery only in sections outside the range of administrative supervision. The desideratum in such collaboration is, of course, to place the industrial technic of the administrative departments at the service of the Census, and the statistical technic of the Census at the service of the departments. Many of the latter have considerable field staffs in close touch with the industries under investigation, and of expert training. These form the ideal substitute for the untrained field staff of the Population Census, and it will be found on other grounds that the departments are the best qualified to collect and visé the statistics in the field.

On the other hand, to the Census must fall the duty of bringing the departments into council and planning the inquiry as a whole, creating the nexus of association between its parts, and generally defining methods. The Census also has the larger experience in, and greater facilities for, the work of compilation; in machinery alone, it has in the neighborhood of $100,000 invested, and its staff is large and highly skilled in handling masses of data.

It is often popularly overlooked that when an inquiry exceeds a certain scope, it calls for a new office technic altogether. In brief, then, the Census is the best organizer, the departments the best collectors, and the Census, again, the best compiler of production statistics. A plan to unite in harmonious team-play will infringe on no one's activities, but will rather increase them by directing them into the most advantageous channels. Duplications will vanish, and the saving from this alone will cover many of the gaps which exist under the present go-as-you-please regime. Of course there is a large field where the Census must act alone—not more than 20 per cent. of production outside of agriculture gets any record at present. Here the Census will proceed by correspondence and employ a field staff only in the final stages; this staff will be its own and will be of trained men.

With this by way of statement of principles, it may be of interest to note just how the field breaks up under the scheme and how far the organization has been effected to the present. The work of organization is not finally completed, but it has progressed so far as to make a beginning on the new basis possible with the present year and to render therefore a description of it useful.

Agriculture.

Our great and fundamental industry offers one of the best examples we have of past statistical malpractice. Originally the decennial census furnished the only agricultural statistics. They were comprehensive, but they were slow in appearing, and of course an *annual* return in agriculture is a *sine qua non*. To supply the deficiency, the provinces "set up shop" for themselves. The Dominion also, in 1908, began the issue of annual, and even monthly, statements. These acquired an added importance later when Canada became an adherent of the International Institute of Agriculture at Rome. To supply them, a somewhat extensive organization was created, Provincial methods being found so completely at variance that co-ordination was impossible. Hence, a dual series of reports and estimates arose—an exasperating spectacle to traders, and a source of endless friction among officials.

It may be said frankly that neither Dominion nor Provincial authorities have had occasion for satisfaction in their annual agricultural estimates. The crucial points in a scheme which must produce results in anticipation of marketing are the areas sown to the several crops and the number of live stock on farms in the month of June. Applying to the former the average yields per acre at harvest, the total crop is obtained. The method generally in use for securing the June data was by means of estimates from correspondents all over the country as to the percentage increase or decrease compared with the preceding year. This, notwithstanding that it has had the adherence of the United States for sixty years, is faulty, for it provides no really solid foundation; moreover, its errors tend to become cumulative. What is required instead is a series of actual returns from individual farms—as many as possible—so that the estimate may rest on fact. Ontario early recognized this

and adopted the plan of circularizing the individual farmers instead of working through correspondents; the percentage of returns, however, had fallen so low that results were impaired in the application. British Columbia also was able to keep in somewhat closer touch with actual conditions.

Getting the Information.

The difficulty, of course, lies in reaching so large a number of individuals. There are 700,000 farms in Canada. A conference between the Census and the Provincial Agricultural Departments was held in 1914, but it was not until 1916 that a plan was arrived at. After a thorough canvass of ways and means it has appeared to the majority that the best avenue to the farmer for such a purpose lies through the rural school teacher. The school is ubiquitous, and the work of distributing and collecting a simple card annually through the school children fits in well with educational work. The matter has gone beyond theory, Quebec, Saskatchewan and Alberta having tried it last year with marked success.

Briefly the method is as follows: A card, previously agreed upon, is printed by the Census. The proper number is shipped to the Provincial Department of Agriculture. The latter, in co-operation with the Department of Education, forwards them in bundles of 25-40 to the rural school teachers, who have been previously advised and coached in the work. A statement in simple language, to be read to the children, is enclosed. The teacher then distributes the cards through the children, making the whole a school exercise and a lesson in public service, as well as in agricultural education.

In Saskatchewan, some 70,000 cards were sent out in this way last year and 36,000 received back, a percentage which places our knowledge of the agriculture of Saskatchewan on a fairly safe basis, especially for a first attempt. The cards, on their return to the provincial capital, were first sorted by districts, then forwarded to Ottawa for compilation, and finally made the basis of an estimate by the Census and the Province in consultation. The Maritime Provinces will adopt the same method in 1918. Ontario, Manitoba and British Columbia incline to the plan of mailing the card to the individual farmer, the rest of the process to be substantially as described.

The main point is, that, beginning with 1918, we shall have annual statistics of agriculture for the whole of Canada on a uniform and sound basis, the various official agencies contributing their quota of assistance, and conflicting results being a thing of the past. The annual statistics, even when perfected, will necessarily contain a modicum of estimate, but the decennial census will correct this, and no recurrence is expected of a situation like that of Saskatchewan in 1916, when both Province and Dominion were found to be "out" nearly 30 per cent. in their acreages for wheat. Similarly the monthly reports on conditions the year round, as between the Census and the Provinces, will be brought into harmony. The decennial census of agriculture, it may be added, will be taken by improved methods—a schedule to each farm.

Dairying.

Dairy factories may be regarded as an appendage to farming. The Provincial Dairy Commissioners are in close touch with the field; most of them have instructors or inspectors who visit personally every dairy factory once, twice or oftener a season. To secure the statistics of these establishments adequately and without friction and duplication, the following plan has been adopted: First, a common form has been agreed upon. The Census prints this and supplies a sufficient



The Receiving Room, Census and Statistics Office

Where the replies from industrial concerns are received, checked and edited for compilation. On the table in the background is a card for every producing plant in Canada

number to each Provincial Dairy Branch. The latter, through its field staff, collects a return from each establishment. These, after viseing, are forwarded to Ottawa for compilation. Immediately the latter is effected for a Province, the results are sent back for use in any way deemed expedient. The Census publishes the report for the whole of Canada, with the editorial assistance of the Dominion Dairy Branch, and we thus obtain a single coherent return, impossible of contradiction, and as comprehensive and accurate as official machinery can make it. Quebec, which has long done excellent work in dairy statistics, prints her own schedules, which, however, conform to the general requirements. For Ontario, the Census is mailing the forms to the factory operators direct, but the provincial officers supply the lists and are co-operating in the work of securing the tardy ones and in revising results as a whole. Farm dairying will be covered as a section of agricultural statistics proper above.

Fisheries.

The sea fisheries have always been regarded as the domain of the nation at large (the right dates from Magna Charta), only inland waters fall under Provincial jurisdiction. As the lake and stream fisheries of the Maritime Provinces are unimportant commercially, and those of the west still remain under the Dominion, it follows that Ontario and Quebec alone, in addition to the Dominion Fisheries Branch, are concerned in the statistical problem. British Columbia has a Fisheries Branch, but it does not collect statistics.

Statistics of Fisheries must cover (1) the catch and (2) the product marketed, the latter divided into (*a*) fresh, (*b*) domestically prepared, and (*c*) factory-made. The men, boats, gear, etc., should, of course, be recorded, as well as the capital and other details of the smoke houses, freezers, canneries and the like. With regard to the catch, the forms of the three departments were already in substantial agreement, and the Census Office has accordingly adopted them with little change. For the collecting of the data, exceptionally effective machinery exists in the departmental field inspectors and overseers who, between the Dominion and Provincial Governments, bring every fishing section under direct supervision. The Dominion officers, in fact, cover their sections monthly. When the forms are filled in for the year, they will be checked by the proper head office, compiled by the Census and the results shared. Domestically prepared fish will be covered in much the same way. For the factory-made product, the several departments will join in the preparation of lists of fish manufacturing establishments, which will be circularized by the Census direct on a form agreed upon, the returns to be visé-ed by the Fisheries Departments and compiled by the Census. As to publication, the Province will probably issue separately the statistics of their own territories; for the Dominion as a whole, the Census Office and the Dominion Fisheries Branch will collaborate on a report, the Census furnishing the general editorial supervision, whilst the Fisheries Branch supplies the comments and interpretations necessary from an administrative and technical point of view.

Forestry.

The Forestry section includes (1) operations in the woods, (2) sawmills, (3) cooperage shops, (4) sash and door factories, planing mills, etc., (5) pulp and paper mills, and (6) wood distilleries—from which the subject shelves into specialized wood manufactures. For the first, Quebec and British Columbia have excellent statistics, but the other provinces record merely the cut on Crown lands (on which stumpage dues are collected), the increasing areas of forest held in fee simple not being covered. (In Nova Scotia practically all timber lands have passed from under the Crown.) The operations of the sawmills and cooperage shops of course reflect the work in the woods, their product being the logs in another form—except that they do not account for products like telegraph poles, cross ties, fence posts, etc. In the sawmilling subdivision, the Census will collaborate with Quebec and British Columbia along the lines already described, but will work alone in the other provinces. It is hoped that eventually the field staff of all the provinces will be available for the direct checking of operations in the woods and for the compiling of lists of sawmills, for which work they are so excellently adapted. For the prompt return of the pulp and paper mill returns the Pulp and Paper Manufacturers' Association has promised its assistance. All results will be communicated to the provincial governments in advance of publication.

The Dominion Forestry Branch has issued for several years past a series of statistical reports on forest products. These will be continued, but will contain the statistics derived as above and under arrangements as to publication similar to those in the case of Fisheries. The Census Office throughout the organization of this section has been in close advisement with the Forestry Branch, with the end of subserving the latter's needs no less than its own.

Mines.

Mining Statistics are perhaps the most difficult of all to arrange for, the reason being their exceptionally varied and technical character. At least five provincial departments, as well as the Dominion Department of Mines, have been issuing statistics for many years. All these statistics are of good quality, but the methods followed are often abruptly at variance, and they are limited strictly to the mining point of view. As to the principles which co-operation might follow, a general agreement has been arrived at between the Census and the Provinces. As between the Census and the Dominion Mines Branch, an arrangement has been made for the present year, whereby the forms and machinery of the latter will be used to cover mining production, whilst the Census will independently secure the other data of the inquiry. The arrangement is not considered final, but it at least prevents the same Government asking the same concerns twice for the same information. For future years a plan of complete co-operation, including Dominion and Provincial authorities, is aimed at. It is felt by all that such co-operation is feasible and well worth the difficulties of organization which it involves.

Hydraulic and Other Central Power Plants.

Another important section under dual control statistically consists of plants for the manufacture of electric current. There are two kinds of these, namely, hydraulic power plants, whose product is merely the transformed "white coal" of our waterfalls, and those making power by means of fuel under boilers. The first alone are matters of direct administrative concern, but the second are so closely allied that the subject must be treated as one. The Dominion Water Power Branch, the Ontario Hydro-Electric Power Commission, the Quebec Streams Commission, and the Water Power Commission of Nova Scotia divide the administrative field. In collaboration with the Census, these bodies have agreed upon two forms (the Conservation Commission being



The Card-Compiling Machines

Each of these ten machines will handle from 35,000 to 40,000 punched cards in a day

also consulted) which it is thought will illustrate the main features of power production and which can be varied from year to year over the entire range of the subject. They have united also in the preparation of lists of plants. The forms will be sent to these direct by the Census (except that the Hydro-Electric Commission of Ontario will collect from the 250 plants now under its control). The compilation will be made by the Census Office, and the country will have a single series of statistics by provinces. For the Dominion as a whole, the bulk statistics may be issued in a separate volume, accompanied by some of the details as to the organization of individual companies (edited by the Water Power Branch), which make a work like Garcke's "Manual of Electrical Undertakings" so valuable a handbook in its field.

An "electrical industries" group will ultimately be added, including Telegraph, Telephone and Signalling companies.

General Manufactures.

There remains the large and complicated field of general manufactures in which little or no statistical work has been done, save by the decennial census or by intervening postal censuses like those of 1905 and 1915. These statistics will now be collected annually. The problem consists first in securing the names of going concerns. Every known source will be exploited for these—directories, gazeteers, commercial agencies, Boards of Trade, manufacturers' associations. Among Governmental departments the Factories' Inspection Branches and Workmen's Compensation Boards can help materially in this connection. The concerns will then be circularized under the Census Act, which holds the delivery of a schedule by registered letter to constitute an inquiry within the law. Some field work will be necessary; this will be done by a small staff of experts. About seventy different forms will be used—one for each distinct group of industries. All previous censuses of manufactures were taken on a single form, a procedure which made it impossible to call for specific data on such points as equipment, raw materials and products. It is now hoped to get complete statistics for about four thousand named products.

Office Organization.

Mention was previously made of the office organization required for a large inquiry like the present. This has been carefully thought out and rehearsed. Every concern has been assigned its place in a classification scheme that includes 399 divisions. Each concern is card-catalogued and given an office number—by which alone it is known to the clerical staff, thus ensuring the secrecy of the individual returns. There are about 60,000 names on the catalogue. The technic for sending out the many overlapping and interrelated inquiries has been provided. The returns will come back often at the rate of two thousand a day, and arrangements have been made that they may be checked, edited, the complete ones sent to the compiling machines, and the incomplete placed in the way of correction on the day they are received. The average clerical staff will number fifteen, but this will rise to twenty-five in the months of pressure, dropping back to eight or ten at other times. For the compilation of the agricultural section, which falls to be done in July, a special temporary staff will be employed. It should be added that the Production Census as above described will by no means represent the sum total of information that we may desire to have of our industries. It will, however, provide the basic data from which other and special

inquiries can be built up from time to time as occasion points the necessity. Especially will it provide the organization by which such inquiries can best be handled.

How the Census of Production Will Be Published.

Beginning with 1918, then, we shall have an annual Census of Production in Canada, which will appear in nine volumes, as follows:—

Volume I.—Agriculture, Field Crops and Live Stock.
Volume II.—Dairying.
Volume III.—Fisheries.
Volume IV.—Forest Products.
Volume V.—Mines.
Volume VI.—Power Plants.
Volume VII.—General Manufactures.
Volume VIII.—Directory of Producing Concerns.
Volume IX.—General Summary of Production.

These may be broken into smaller sections as desired, and brochures on live stock, pulp and paper, textiles, etc., etc., issued. With regard to cost of printing, it may be pointed out that the scheme involves but little increase on present methods. Volume I will be virtually a reprint of the January issue of the Monthly Census Bulletin of Agricultural Statistics. Volumes VI and VII will be new, but Volumes II, III, IV and V are already appearing, though not in co-ordinated form. Volume VIII is suggested in view of the daily inquiries that are now received for lists of concerns manufacturing specified products and which can be answered only by the expensive method of making transcripts from the card catalogues. Volume IX would consist of a reprint of the Production section of the Canada Year Book.

As remarked at the outset, the role of Canada for the next half century at least must be that of a producer. Our economic status, on which so much of our social and even political future depends, will be according to the measure of our production. With a scheme of production statistics similar to that which has been outlined, but improving with time, it should be possible for the statesman to keep his finger on the pulse of this governing factor in Canadian development in a way hitherto impracticable.

DOMINION CANNERS IN BRITISH COLUMBIA.

Directors of the Company Were Recently on the Coast Looking for a Site for a Plant.

According to a Vancouver despatch, dated January 26, a new and important canning industry is promised British Columbia, if plans of the Dominion Canners, Ltd., of Ontario, are consummated. Three sites here are now under consideration of the directors of the company, four of whom are now here, personally, looking over the ground, with a view of establishing their second plant in British Columbia. The members of the company here are Senator Richardson, of Kingston; David Marshall, M.P., of Aylmer; Sam Nesbitt, of Brighton, and R. L. Innes, managing director.

Seen by the press, Mr. Marshall said that he and the others were here, looking over possible sites, and that they would be here for a considerable time longer. If they decided to start up here, it would be for the canning of jams and preserves, at the beginning, and they might branch out later. Just how large a plant would be the company's original unit here, Mr. Marshall did not care to say, but, he said, they would start with a foundation capable of building upon and enlarging.

The Famous Allan Shaft

Something About the Coal Mine at Stellarton Where Last Month's Disaster Occurred

The Allan shaft at Stellarton, N.S., at which last month's colliery disaster occurred, was one of the most up-to-date and best equipped shafts on the continent, and at the time of its construction was the deepest in America. It was constructed during the general managership of C. J. Coll, at a cost of about $1,250,000, and took over two years to complete. Ground was broken on New Year's Day, 1904, and Number Two Shaft was completed in October, 1906. Number One was not completed until some time in 1907. Number One was sunk to a depth of 1,660 feet, and Number Two to 1,050 feet. Both were ten by twenty-four feet and were timbered from top to bottom with yellow pine. Number One Shaft taps the Cage Pit seam and Number Two taps the old Ford Pit seam, in which a disastrous explosion occurred thirty-eight years ago. The Allan Shafts were equipped with the most up-to-date machinery and apparatus and had a producing capacity each of 2,000 tons a day, although they never attained that output. Owing to the outbreak of fire in the Albion Mine of the Acadia Coal Company, some weeks ago, the Allan Shaft was put on double shift. Sir Montagu Allan is President of the company, H. Prudhomme is General Manager, George Gray, Assistant General Manager, and M. Notebeart, Chief Engineer.

A St. John gentleman, formerly living in the Stellarton district, provides the following information on the Allan Shaft:

About fifty years ago there was an explosion in the same seam of coal, known as the Ford Pit explosion, in which more than one hundred men lost their lives. Their bodies were never recovered. These mining areas were then owned by what was known as the General Mining Association, but were acquired a few years later by the Acadia Coal Company, which is largely owned by Belgian capital. The present general manager is Mr. Prudhomme. The Ford Pit seam was known, and is known to-day, as the largest single seam of coal in the world.

It was never possible to uncover the Ford Pit, but some years ago the company sunk a shaft about 500 yards from the mouth and to the north-west of the old Ford Pit, but they never struck the old Ford seam, but were taking coal from adjacent seams. At the present time the levels from the shaft where the explosion occurred run well under the town of New Glasgow, about two and a half miles distant from the mouth.

About three years ago, an explosion, which it seems is similar to this one, occurred in the Allan Shaft. Happily, it was on Sunday morning, and there were very few men at work. It was at this explosion that the Provincial Inspector of Mines, Mr. Blackwood, went down, equipped with a Draeger outfit, to assist in rescuing the few men who had been entombed, which included General Manager Brown, of the Allan Shaft, who was brought lifeless to the surface.

The company has always had, for the past two years, a great deal of difficulty with the Allan Shaft, on account of fires caused by spontaneous combustion. Galleries in the mine that were on fire were successfully walled off by reinforced concrete, and thus the mine was saved. From the details in the despatches this morning, it would seem to be a recurrence of the Ford Pit explosion.

The Allan Shaft was one of the most, if not the most, productive mine in the Nova Scotia coal fields. The majority of men who work in the Allan Shaft are natives of the town of Stellarton. Mr. Noterbart and Mr. Marthdeur, both prominent Belgian mining experts, are officials at the mine.

The Ebb and Flow of the Price Movement

Written Especially in Connection with Prices in the Furniture Industry, the Following Article, which Contains the Substance of an Address Delivered to the Furniture Manufacturers' Association, will be Found of Interest to All Manufacturers

By JAS. E. FERGUSON

Canada Furni ure Manufacturers Limited, Woodstock

TO the student of economics the ebb and flow of the price movement is always of much interest and, to the man of business, of extreme importance. Whether the price level be high or low is of comparatively little importance to the business man, so long as an equilibrium is maintained. When there comes a period of rising or falling of prices, and the former equilibrium is disturbed, then a situation arises which is of grave importance to everyone engaged in the production and distribution of goods.

For the last twenty-five years, there has been a continual movement upwards in the level of prices, at the rate of about 2½ per cent. per annum. A moment's reflection will bring back to anyone the fact of this gradual increase. This upward movement was comparatively even, with the exception of one or two periods of readjustment. The outbreak of the war in 1914 was the occasion for the upsetting of all former standards of measuring and forecasting the movement of prices.

In the manufacture of furniture many of the materials used have passed through some of the primary industries. Consequently, prices have shown a greater upward movement. In order to appreciate the advance in prices of materials used in the manufacture of furniture, we shall calculate how much it will cost us to buy to-day the same quantity as could be bought for $100 in 1914. Here is a list of commodities used; $100 in each case.

Commodity.	1914	1915	1916	1917
Lumber	$100 00	$102 00	$107 00	$135 00
Glue	100 00	107 00	158 00	224 00
Screws	100 00	100 00	179 00	248 00
Nails	100 00	124 00	174 00	250 00
Butts	100 00	100 00	193 00	264 00
Locks	100 00	100 00	188 00	196 00
Casters	100 00	116 00	150 00	166 00
Table Locks	100 00	100 00	118 00	130 00
Bolts	100 00	104 00	170 00	213 00
Rivets	100 00	141 00	229 00	329 00
Hooks	100 00	110 00	119 00	140 00
Bed Fasts	100 00	100 00	137 00	200 00
Pulls	100 00	100 00	132 00	173 00
Varnish	100 00	100 00	100 00	128 00
Shellac	100 00	103 00	157 00	324 00
Mahogany Stain	100 00	139 00	222 00	261 00
Golden Stain	100 00	109 00	109 00	115 00
Enamels	100 00	116 00	146 00	148 00
Ammonia	100 00	100 00	100 00	100 00
Spirits	100 00	116 00	132 00	192 00
Benzine	100 00	79	136 00	163 00
Boiled Oil	100 00	111 00	150 00	209 00
Japan	100 00	120 00	120 00	123 00
Filler	100 00	132 00	132 00	165 00
Turpentine	100 00	100 00	100 00	103 00
Mirrors	100 00	119 00	145 00	181 00
Hessian	100 00	128 00	140 00	205 00
Excelsior	100 00	84	95	158 00
Wrapping Paper	100 00	85	171 00	228 00
Crating Paper	100 00	100 00	105 00	122 00
Cane	100 00	110 00	135 00	200 00

In addition to these materials, one must also consider the large increases in the prices of coal, sandpaper, oils, brushes, small tools and other supplies necessary for the efficient operation of a factory. Labor employed in the industry has received considerable increases, and, owing to the effects of enlistment, the labor force is less efficient. In fact, one can hardly think of any article used in the manufacture of furniture which has not increased since July, 1914.

These tremendous advances have caused much concern to manufacturers, and have robbed them of whatever profit they did make in the production of furniture. To show that this advance is general, and that the furniture industry is only experiencing its share of the general movement, the following list is prepared, showing the index numbers of prices of commodities in Canada and United States. These index numbers, in nearly all cases, are based on the average prices from 1890 to 1899, some of these dealing with all commodities, and others, such as the Annalist and Gibson numbers, being for foods.

Name of Index.	No. of Commodities	July 1914	Oct. 1915	Oct. 1916	Oct. 1917
Dept. of Labor, Ottawa	271	134.6	152.4	187.2	242.6
Annalist	25	144.879	140.83	187.04	280.2
Bradstreet's	96	8.6566	9.9774	12.0399	16.9117
Dunn	200	119.708	126.66	152.35	219.67
Gibson	22	58.9	60.	82.2	120.1

These figures show an increase of about 85 per cent., and present a very vivid picture of the rapidity of the upward trend of the price movement since the commencement of the war. It is also interesting to compare prices of basic commodities for the past few years.

Commodity.	Dec. 15 1917	Jan. 8 1917	Mean 1916	Mean 1915
Copper, Lake spot.....lb.	.235	.2800	.2866	.1775
Cotton, Spot Mid. up..lb.	.2995	.1790	.1607	.10325
Hemlock.....M.	30.50	25.00	24.25	23.00
Hides, No. 1 Native...lb.	.35	.335	.275	.22875
Petroleum.....bbl.	3.75	2.85	2.50	1.75
Pig Iron.....ton	35.95	35.95	30.325	17.50
Rubber, up river fine..lb.	.545	.78	.812	.7156
Silk, Italian raw.....lb.	7.30	6.95	5.828	4.15
Steel Billets.....ton	47.00	60.00	46.04	25.25
Wool, Ohio.....lb.	.76	.37	.33	.275

This list does not represent what would have occurred in the natural course of events. The prices of copper, iron and steel products have been fixed by the United States Government, and so are not subject to the operation of economic laws. In these cases, there is no longer a price in the sense which in a price is the exchange value expressed in terms of money, and decided by the free operation of demand and supply.

When we speak of price, we must have a very clear idea of what is meant. In the exchange of goods, money has been accepted by all trading commodities as the best means of exchange, but it has this disadvantage—that there is no fixed standard. When we speak of a dollar, the only definition we can give is that $1.00 is 23.22 grains of gold. Price

is a ratio between the value of a commodity and the value of 23.33 grains of gold. The commodity itself is subject to the operations of the laws of supply and demand, and the effect, to some extent, produced by these laws, has been shown in the above tables.

In considering the movement of prices, we must also take into consideration the other factors, viz., the supply of, and the demand for, gold. All other standards of measurements are fixed, and can be checked by anyone desiring to do so. Everyone knows that a yard is thirty-six inches, that a pound is sixteen ounces, and that all weights and measures can be checked with the official standards. If a manufacturer were to buy lumber on a fluctuating basis of measurement which, instead of continually meaning that one board foot of lumber contains 144 square inches, would one day mean that a square foot contained 175 inches, and next month contained 110 inches, one can readily see the disturbing influences this uncertain means of measurement would entail. This is exactly the position in which the business world is placed to-day. The supply of money has been increased on this continent to an enormous extent, at the present moment the United States holding more gold than any country ever did in the course of the world's history, and the value of gold, or purchasing power of a dollar, has been decreasing in proportion, thus causing an increase of prices.

Gold, Basis of Credit Expansion.

As every business man knows, gold is the basis for the expansion of all credit, and for the last three years, owing to the importation of this metal into the United States, an enormous amount of banking and commercial credits have occurred, thus inducing and supporting the increased demand for all commodities for domestic purposes, in addition to the war needs of the European nations. Not only has there been the effect of increased gold supply, but the note circulation in all leading countries has been enormously increased. While the leading banks of the world have increased their gold holdings about three times since 1914, their note circulation has been increased nearly ten times, and the inflation of currency has caused a further upheaval in prices. Thus, behind the apparently simple relation between demand and supply, lies the complex machinery of finance, whereby these forces are connected, and their resultant given expression in what we call "price."

The ordinary result of high prices in any country is an increase of imports, with the resulting increase in the export of gold, which automatically restores the equilibrium. This conditon does not exist to-day. The trade of Canada and the United States still shows an excess of exports of commodities. In Canada this excess was over $320,000,000 for the twelve months ended October, 1916, and over $440,000,000 for the same period ended October, 1917. In United States, for the period of ten months ended October, the excess in 1916 was $2,433,406,596, and in 1917, $2,644,973,234. Increase in production of commodities would also help to offset the rise due to the above conditions, but the latest returns do not show that these two countries are at present able to do this. Another short cotton crop, coupled with the increased demand, has sent the price of cotton over thirty cents. Transportation difficulties have considerably retarded the movement of commodities and practically all railroaders are unable to maintain the physical condition of their properties to say nothing of the imperative necessity of adding to their equipment in order to overcome the great shortage of cars.

To-day we have the unprecedented condition of four main factors operating towards the uplift of prices, viz., the increased demand for commodities because of the needs of the warring nations; the decreased supply of commodities because of the withdrawal of the productive forces from production to destruction and the congestion of traffic; the increased supply of gold with which the warring nations paid for their needs, with its consequent expansion of loans and the proportionate decrease of the demand for money—a powerful four-horse team, as it were, all pulling in the one direction, whereas under ordinary conditions, as they existed before the war, these factors generally operate against each other, one counteracting the effect of the other.

Outlook for the Future.

As to the future, of course, no man will have the temerity to predict the probable course of prices, but one can, in all fairness, estimate the likely trend from the conditions of the past year, and the outlook for the immediate future. Before one can tell, with any probability of accuracy, how the price level of future years will stand, one would have to know the duration of the war, the degree of exhaustion to which the warring nations will be brought, the weather and harvesting conditions each year, the production of all commodities, the amount destroyed, the inflation of currency, the extent to which the force of demand has been neutralized by wise, and otherwise, government regulation of prices and consumption, and a host of other items, absolutely impossible to know. As to the immediate future, one may be safe to say that the trend of prices will keep on mounting upwards, and that, so far as the furniture industry is concerned, the passing of twelve months, in all probability, will see such increases in the prices of all commodities, entering into the manufacture of furniture, and the labor necessary to operate the factories, that prices for furniture will be probably 30 per cent. higher at the end of 1918 than they are to-day.

These conditions show the absolute necessity for the furniture manufacturer watching carefully the trend of prices, day by day. Now, if ever, is impressed upon all, the need of knowing thoroughly costs of production. No part of industrial organization is of greater importance than that of cost accounting. A well-developed system of cost-finding, which presents, to the manager, the complete costs of units of production, showing, in detail, where the money has gone —whether for direct, or indirect, production—the relative values of different methods, is the best weapon against failure. Guesswork is a thing of the past in modern plants. Fear of the cost should not deter any manufacturer from this step. The expense is going on, at any rate, and a cost department only visualizes this expense. To meet increased material and labor costs, without fear, it is necessary to have adequate cost reports, constantly kept up-to-date. As production involves a period of time, the trend of prices must be watched, all barometers of trade and finance regularly examined, and all important changes in industrial society considered. Conditions are largely determined, not by, but for, the manufacturer, and his success depends on his ability to utilize, to the fullest extent, his knowledge of the changes affecting his business and industry generally. And, at no time in modern industrial life, has it been so necessary to have this knowledge, as now.

The death occurred at Sherbrooke, Que., on January 18, of Alexander Galt Lomas, president and general manager of the Magog Woollen Mills, Limited.

Profit Sharing and Producers' Co-operation

A Record of the Experiences of Those Who Have Tried One or Other of the Schemes in this Country, Together with Arguments by Noted Authorities For and Against Their Operation

By PROFESSOR H. MICHELL

Department of Political and Economic Science, Queen's University

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AT the present time, when the disputes between captial and labor have reached, or are fast reaching, a state of acute tension, any proposals aimed at promoting better relations between employers and employed, when framed with the express intention of giving labor a greater share in the profits, and more influence in the conduct of industry, are of peculiar interest.

Two schemes, closely allied to each other, although not necessarily, nor, indeed, generally allied, are profit-sharing and producers' co-operation. Midway between the two, lies labor co-partnership, thus forming the connecting link. The last, if pushed to its logical conclusion, is the natural, although not inevitable, goal of the first. All three systems have been, and in a few instances still are, to be found in Canada; a study of them cannot but prove of interest.

Definition.[1]

Profit-sharing is understood to involve an agreement between an employer and his work people, under which the latter receive, in addition to their wages, a share, fixed beforehand, in the profits of the undertaking. A grant or bonus, made at the absolute discretion of an employer, and not upon any pre-arranged basis, is not a case of profit-sharing for the present purpose.

Labor co-partnership is an extension of profit-sharing, enabling the worker to accumulate his share of profit in the capital of the business employing him, thus gaining the rights and responsibilities of a shareholder. A still further stage is found in some co-partnership schemes which provide for a direct share in the management, as well as a share in the profits, one or more seats on the board of directors being expressly reserved for representatives of the work people.

Producers' co-operation is that system by which the whole management of the business is turned over to the employees, and the profits therefrom divided among them, the original owner of the concern retaining a share fixed by mutual arrangement beforehand.

Of these three systems, we have had in Canada thirteen experiments at profit-sharing; that is to say, where the share in the proceeds of industry is agreed upon beforehand. There have also been a large number of firms which have given bonuses, as an act of grace, and not on any prearranged scale. Particularly so is this true at the present time, when many business houses are giving war bonuses to their employees, notably among the coal miners. These, however, do not conform to our definition, and may be disregarded.

Of the second category, labor co-partnership, we find nine examples in Canada. It is interesting to note that of these nine, only one, Messrs. Stanley Mills & Company, of Hamilton, presents the feature of reserving, on the Board of Directors, seats for the labor co-partners.

Of producers' co-operation, we have had eight examples, all of which are defunct. We must, however, acknowledge that, so far as can be ascertained, we have had no example of an employer handing over his business to his work people, but all the schemes of producers' co-operation have originated among the workers, who have left their former employment, and set up for themselves. In 1914 a proposal was made by a certain employer, whose name need not be mentioned, to hand over his business to his employees, but, although the details of the whole arrangement were carefully worked out, the outbreak of war and the ensuing uncertainty in trade prevented it from being carried out.

History.

It is not the intention of this little study to detail the history of profit-sharing and producers' co-operation—the literature on the subject is already sufficiently large—but simply to recount the experiences of those who have tried it in Canada. Both systems originated in France, or, perhaps, it would be said, found their modern expression in France, as the theory, at least, of profit-sharing, was known in England before it was started in Paris, in 1842, by Leclaire, a prosperous house decorator. He was the first to put the idea in a practical, working form; although there was, undoubtedly, an attempt made in Ireland, at an even earlier date. Since then, the system has been tried in almost every country, with varying success, often with no success at all, the mortality among experiments of this kind being very high. For instance, of the 299 recorded instances of profit-sharing schemes in England, 163, were, in 1912, defunct, and no information as to what has happened to the survivors, since the war, is as yet obtainable.[3] In the United States, also, a large number of schemes have failed, there being only 60 at present in force, and certainly more than that number have failed.[4] The mortality in Canada has been equally high. Of the thirteen profit-sharing schemes, eight are now defunct, and, of the nine co-partnerships, two have been discontinued; while, as has been mentioned before, all the producers' co-operative systems have failed.

Reasons for Failure.

The reasons why such ill-success has met so many efforts at introducing profit-sharing schemes are not far to seek, and may be summarized as follows. On the side of the employers, it was often found that the hoped-for result, in the shape of increased zeal and efficiency, on the part of the work people, did not show itself. The complaints on this

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[1] I have followed here the definitions given in the report of the English Board of Trade on Profit-sharing and Labor Co-partnership in the United Kingdom. Cd. 6496. 1912.

The material for this study has been gathered from a great many sources. The report to the English Board of Trade lists six examples in Canada of profit-sharing. The files of the Labor Gazette have supplied a like number, and its editor, Mr. Bryce Stewart, has kindly put me on the track of a few more. The other examples have been supplied to me from different sources, and through personal investigation. In every instance information has been most willingly and courteously given in answer to inquiries addressed to the firms in question. None of the instances of Producers' Co-operation have been published before.

[3] Report of English Board of Trade, p. 15.

[4] Profit sharing in the United States by Boris Emmet, Bulletin 208 of U.S. Dept. of Labor, 1917. Contains an extraordinary detailed analysis of profit-sharing schemes.

score are numerous and bitter. Over and over again, we find the employer stating that he abandoned the scheme because his employees showed no appreciation of the benefits extended to them, looking upon the increased remuneration as their right, and not as a privilege or an incentive to greater efforts, and not considering it incumbent upon them to make any attempt to increase their efficiency. Bitterly disappointed in this, the employer has thrown up the scheme in disgust. Another fruitful cause of discontinuance, even when the system has been working well, has been a change in the business, or in managership, leading to reorganization, and a dropping of the scheme. This, of course, cannot be attributed to any defects in the system or theory of profit-sharing.

The Trade Unionist Attitude.

On the side of the employees we find several reasons, the most compelling of which is the unalterable hostility of the trade unions to any form of profit-sharing or labor co-partnership. In a recent study of profit-sharing in the United States,[5] the opinions of twenty-one American labor leaders are quoted, and all of them, without a single exception, are absolutely opposed to the system under any circumstances. For instance, Mr. Samuel Gompers says: "This proposition has never been seriously considered by the organizations of labor. I desire to say, further, that it has come under my observation that some employers, who have inaugurated systems of so-called profit-sharing, have pared down the wages of their employees, so that the combined sharing of profits and their wages did not equal the wages of employees of other companies in the same line of industry. What we are especially interested in, more than profit-sharing, is a fair living wage, reasonable hours and fair conditions of employment." Other opinions are all along the same lines, the argument invariably being, that, if the employees have deserved a greater share in the proceeds of their industry, it should be given to them in the shape of higher wages. Another objection invariably made is that the system is primarily aimed at keeping men from joining the unions, which is quite frankly acknowledged to be true by many employers who have tried the plan.

Perhaps the most comprehensive and just system of profit-sharing ever tried was that started by Sir Christopher Furness in his great shipbuilding yards in England. This great scheme, which attracted wide notice, lasted but a very short time, and was abandoned at the request of the men themselves, who, although absolutely satisfied with the plan, saw in it the greatest foe to trade unionism, and who, in a spirit of altruism, rather than endanger their principles, were willing to surrender the benefits accruing to them under the scheme. Mr. G. N. Barnes, the labor leader, in England, said of this experiment: "If all the employers in England were as fair-minded and as decent as Sir Christopher Furness, there would be no use for the unions, and we could afford to disband; but, unfortunately, not all employers are of his type, and, if we should disband to-morrow, we should, under economic pressure, gradually drift back to where we were twenty-five years ago, or worse."[6]

A report to the Fabian Society, by Mr. and Mrs. Sidney Webb, is uncompromisingly hostile. "The aim of profit-sharing is not the finding of a new organization of industry, so that it may be governed in the interests of the community, rather than in those of individuals, but the discovery of a way to avoid conflicts between the capitalized employer and the wage-earner in his service."[7] This impeachment is, of course, frankly accepted by the authorities on co-partnership. Mr. Aneurin Williams says: "Co-partnership, in its ultimate development, seeks to promote a harmony of interests between the workers, whether with hand or brain, and those who find the capital. From socialism and from syndicalism, from voluntary association and from capitalism, it takes the best elements, and strives to conserve and to harmonize them in the common interest of all."[8]

Such an ideal, to the thorough-going trade unionist, is an impossible one. What he regards as economic justice for the worker can only be won through trade unionism, and the final conclusions of Mr. and Mrs. Webb are fully in consonance with this attitude. "No schemes of profit-sharing, or the sale of shares to employees, or permission to them to have representatives on the board of directors—philanthropic in intention as some of them may be—avail to rescue the manual workers from the penury and economic subjection incident to the capitalist system; no such scheme ought for a moment to be entertained which, by causing the workers to abandon trade unionism, to forego the right to strike, or to enter into long-term agreements terminating at different dates, places them at the employer's mercy. Even the best of profit-sharing schemes have proved to offer the employees advantages which are largely delusive, and have the drawback of militating against the maintenance of an effective standard of life for the trade as a whole. There are some schemes of profit-sharing, put forward as philanthropic, which, in their absence of security against the arbitrary fixing of nominal capital on which interest is charged, in their failure to set any legal limit to the salaries awarded to themselves by the directors and managers, and in their lack of any restriction as to the sum that may be taken out of profits for depreciation and reserves, amount actually to traps, if not even to fundamental traps, to catch the unwary workman who is nominally admitted as a partner."

Finally, the Webb report makes an observation which is well worthy of the closest consideration. "It is indeed plain, on the ordinary principles of prudence, that the very last investment that a workman ought to choose for his savings is the industry—least of all the very enterprise—on which he depends for his daily bread."

Beneficial Results from Profit-Sharing.

Having now given the objections raised by organized labor to profit-sharing, it is only fair to speak of the definitely beneficial results that have been attained. The report of the National Civic Federation, already referred to, summarizes these benefits as follows:—

1. Promotes more continuous service and more regular attendance.
2. Builds up confidence.
3. Eliminates the rolling-stones and encourages home-building.
4. Enables companies to keep employees during the rush season.
5. Creates a better spirit among the workmen, notably increasing the loyalty and interest on the part of those retaining their stock, and produces a greater spirit of co-operation between employer and employee.
6. Promotes regularity of employment, and increases the effectiveness and profits of the business.

Such results cannot be ignored, and must not be underestimated. They are all, from the point of view of the workman, as much as from that of the employer, highly desirable.

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[5] Profit-sharing by American Employers, published by the National Civic Federation, New York, 1916.

[6] Quoted in report of National Civic Federation.

[7] The New Statesman, Feb. 14, 1914. Supplement on Co-operative Production and Profit-sharing.

[8] Co-partnership and Profit-sharing, by Aneurin Williams, in the Home University Library Series.

Employers' Objections to Profit-Sharing.

But we also find some very strong opinions expressed by employers who have tried the system in objection to it, which may be summarized as follows:—

1. Failure of employers to grasp the significance of the system.

2. Dissatisfaction on the part of the employees when the profits are small.

3. Employees count on bonus payments and make use of them in advance.

4. Preference on the part of employees to have their wages raised instead of receiving a bonus.

5. The sale of stock to outsiders in those cases where the stock is distributed.

A moment's reflection will show that the whole question turns on the one great, fundamental problem, is labor entitled to a greater share in the products of industry, aside from any philanthropic efforts on the part of individual employers, or, in other words, should a greater share in profits be conceded to all labor as a matter of right, or as a matter of grace by well-disposed employers? There lies the crux of the whole problem, and the answer to it is not the immediate concern of this study, but must be left to the individual reader to supply for himself.

Canadian Examples of Profit-Sharing.

The examples of profit-sharing to be found in Canada afford some very interesting instances of success and failure. Success has come, as will be readily seen from a perusal of the record, where the relations between employers and men have always been of a cordial description, and where the offer of a profit-sharing scheme has been accepted by the employees in the spirit in which it has been made, that of cordial good-will and mutual esteem. The men were not unionized, were generally of long standing in the firm, and received the extra money paid out to them as a mark of appreciation for faithful service. Such a spirit marks, perhaps, the happiest relations that can possibly exist in the industrial world.

Not all the instances are given in full, several being omitted as not exhibiting features of particular interest, but a sufficient number are cited to give, it is hoped, a clear view of the movement as it has developed in Canada. In every case permission was sought from the firms involved, and most willingly given, to publish their experiences.

The W. F. Hatheway Company, Limited, of St. John, New Brunswick, wholesale dealers in tea, flour, etc.[9] This company has the honour of being the first in the field, so far as records are available, it having operated a scheme of profit-sharing from 1888 to 1913. Since that date the changed conditions occasioned by the war has necessitated an abandonment, perhaps only a temporary one, of the system. Employees with salaries of from $1,000 to $1,500 received 2 per cent. of the company's net profits; those with salaries of from $500 to $1,000 received 1 per cent.; and workmen in the tea-room and warehouse received from ½ to 1 per cent., according to wages. The bonus was paid in cash; but the participants were strongly advised to leave their bonuses on deposit with the firm, receiving 6 per cent. interest thereon, and nearly all of them did so. The sums so deposited were intended only to be drawn upon in the event of a death in the family, or other serious emergency, or for investment in land, a house, etc. The scheme worked well, and the company report:

"We found that many of the employees were able to save money, and frequently it so occurred that when anyone had to leave our employ he was able to take with him quite a reasonable amount of money he had saved, and which was bringing interest." The company also says: "It gave the employees an amount to fall back on in case of sudden disaster or wish to start for themselves. It made them take a much greater interest in their work, and more careful about stock, book debts, etc., producing a better attention to business; bad accounts were watched, and old stock sold more promptly."

The John Morrow Machine Screw Company, Limited,[11] of Ingersoll, Ont., had a profit-sharing scheme in operation from 1903 to 1908, under which in 1906 the sum of $1,500 was distributed. The reasons for abandonment were that the company found the amount distributed too small to be appreciated, and after the first year or two the employees regarded the bonus as their due. The company finally concluded "that good wages and a bonus system, enabling the employees to earn increased wages by better work, were more satisfactory than the system of allowing the employees to share in the profits at the close of the business year."

The British Columbia Electric Railway Company.[12] This company, operating street railway systems in Victoria, Vancouver, and New Westminster, introduced profit-sharing in 1902. After paying 4 per cent. on the ordinary shares, the balance of profits available for dividends was allotted as to two-thirds to the ordinary shareholders and as to one-third to the employees. Every employee who had worked for twelve months regularly in each year was entitled to participate, all sharing alike, without regard to rank or length of service. This feature, differing from most systems, where wages and length of employment are taken into account in apportioning the shares, was explained by the company in saying that, in their view, "the share in the profits was intended to represent an appreciation of loyalty, and there was no reason why loyalty should not be equally appreciated, when found in employees receiving a small salary, as those who are better paid."

A Large Distribution.

In 1903 the sum of $7,500 was distributed, each man receiving $25, and in 1910 $60,000, the individual share being $57.31, although an even larger individual share, $66.78, had been allotted in 1908. The reason for this decline in the share to each man was owing to the fact that the company, from 1908 to 1910, was incurring heavy capital expenditure in carrying out great extensions, which were not at first quite so remunerative as the old established routes. This extension had brought a large number of new employees into the company's service, who had not served long enough to entitle them to the bonus, and these new men agitated against the bonus, although the older employees were satisfied with the system. The company, therefore, abolished the profit-sharing system in 1910, giving instead a general increase in wages.

The Wortman & Ward Manufacturing Company.[13] The scheme of profit-sharing inaugurated and carried out by this company in London, Ontario, was of such an unique and interesting description that it is worthy of detailed notice. According to Mr. Wortman, who has been good enough to supply the particulars, the system was a "home-made one." The employees of the firm were divided into ten classes, according to number of years' service, all who had served over ten years being reckoned in the tenth class. The aggre-

[9] Details published in report to English Board of Trade. The subsequent history of the scheme has been very courteously supplied by the firm itself.

[11] Given in English report, p. 109.

[12] Ibid.

[13] I am indebted to the courtesy of Mr. W. H. Wortman for the details of this system, hitherto unpublished, and for the table given below.

gate of the year's wages paid to the men was considered as stock, and the amount added to the capital stock of the company outstanding. That is to say, to take a purely hypothetical case, supposing the capital stock of the company to have been $200,000, and the aggregate amount of wages paid out annually was $50,000, the amount was reckoned as $250,000. After ten per cent. had been deducted from the year's profits for the shareholders, the balance was divided among the employees and the shareholders, in the proportion that the total amount of wages bore to the share capital, in the hypothetical case mentioned, the shares, of course, being one-fifth to the employees, and four-fifths to the shareholders. This share was then divided among the men, in accordance with the following somewhat novel and involved but yet effective plan:

1	2	3	4	5	6	7
Class.	Cents.	Number of Men in Class.	Amount.	Multiple.	Total for Class	Share of each man.
10 year men	100	20	$20.00	60	$1200	$60
9 year men	90	5	4.50	60	270	54
8 year men	80	3	2.40	60	144	48
7 year men	70	3	2,10	60	126	42
6 year men	60	3	1.80	60	108	36
5 year men	50	2	1.00	60	60	30
4 year men	40	4	1.60	60	96	24
3 year men	30	3	.90	60	54	18
2 year men	20	3	.60	60	36	12
1 year men	10	21	2.10	60	126	6
			37.00		2214	
Less than 1 year		50	1.50		75	150
		117	38.50		2289	

The explanation of the above table is as follows: For the purpose of arriving at the proportion to go to each class, every year a man had served up to ten was reckoned as 10 cents (column 2). The amount thus arrived at was then multiplied by the number of men in each class, the result being the figures in column 4, which serve as the basis for the share to go to that particular class. It was then necessary to arrive at a common divisor of the whole amount to be divided for each class, and this was arrived at by taking a round sum of $2,300, deducting from it $75, the amount to be divided among those who had served less than one year, and dividing this sum by the amount for the ten classes in column 4, namely 37. The result was 60, and the amounts in column 4 were then each multiplied by 60, the result being column 6, which was divided by the total number of men in each class, the result being the individual shares as shown in column 7.

This system worked admirably, and was greatly appreciated by the men. The company had in its employ over fifty men whose length of service averaged over ten years, many of them with over twenty years. Mr. Wortman sold out the business in 1913, and under the new management the profit-sharing scheme was dropped.

A Hamilton Example.

Messrs. Stanley Mills & Co., Ltd. This firm, which operates a large department store in Hamilton, started a profit-sharing scheme on the stock-subscription plan in 1903. As originally planned, the scheme was a distinct success, but, unfortunately, the reorganization of the business made it necessary to alter the system somewhat, and the conditions proved disappointing in arousing the interest of the employees. The capital of the company consisted originally of $450,000 in common, and $50,000 in preferred stock, all in $25 shares. The preferred shares were intended for employees only, the dividend of 8 per cent. being cumulative, and paid before any dividend was paid to the ordinary stockholders. Bonuses of 1 and 2 per cent. were also paid to holders of preferred shares when the company had an especially good year. The shares were sold to the employees at par, and could not be sold or transferred to any person other than the company, and an employee holding shares on leaving the company's service was under obligation to surrender his stock to the company at its par value.

In 1911 the number of employees of the company varied from 128 to 253, and at the end of the year there were 31 employees, who owned 587 shares, of the value of $14,675. In 1913 the company reorganized its capital. Employees, who were also shareholders, with at least five years' service, were given the option of exchanging their old 8 per cent. preferred shares for new 7 per cent. preferred shares, together with a bonus of 100 per cent. in common stock, which was more valuable than the preferred. Such shareholders participate as ordinary shareholders in the risks and profits of the business, and they are permitted to retain their shares upon leaving the employment of the company. Of the effect of this reorganization, the company writes as follows: "The result was somewhat of a disappointment to us, as comparatively few took advantage of our offer. Those who did subscribe, however, represented the best element in the store. We regret that we cannot report any great success to our scheme to interest our employees. The result might, in a sense, justify the statement that the average wage-earner knows little or nothing of joint stock corporations, and, hence, such persons are sensitive or over-cautious in these matters, especially when, perhaps, one or more others, who have nothing to invest, are apt to ridicule the idea."

A Toronto Case.

The W. J. Gage Company. The profit-sharing system undertaken by this large firm of manufacturing stationers in Toronto can best be described in the words of Mr. A. G. Parker, the Secretary-Treasurer of the company, who has kindly given the following outline of the scheme: "We have been operating a simple system of profit-sharing in our business here for a number of years, which in practice amounts to the following: A block of the unpaid capital stock of the company is allotted to Mr. W. J. Gage as a trustee; he enters into an agreement with each of the employees (heads of departments and men in responsible positions), under which they are permitted to purchase from one to five thousand dollars' worth of stock, depending upon the importance of their position in connection with the house. As, of course, dividends cannot be paid upon capital stock which is not paid up, dividends are not declared upon this stock, but the agreement with each employee provides that a bonus will be paid, equivalent to the current dividend; this bonus to be applied on the payment of the stock, against which there is a first charge of 6 per cent. per annum for interest. If in any year there is no dividend, then no interest is charged. If in any year the dividend is 6 per cent. or under, then the amount of the dividend is regarded as payment in full of the interest. If the bonus be above 6 per cent., then the amount above the interest charge is credited on the purchase of the stock. Permission is given for an employee to make any additional payments he may so desire during the term of the agreement, which is usually for five years. At the end of the period, the stock actually paid for becomes the property of the employees, subject, however, to an understanding that, in the event of the employee leaving or dying,

the President has the option, for sixty days, to buy back the stock, paying for it the amount that has actually been paid in as the purchase price of the stock.

"The above arrangement applies, as we have said, to men occupying more or less important positions in the house. For the benefit of those who do not participate in this stock purchase, we pay an annual bonus, based on the profits of the year and length of service. Last year we paid to all our employees, with the exception of those above referred to, who had been continuously in our employ for twelve months, one additional week's salary or wages, and two weeks' additional salary or wages to those who had been continuously with us for two years or over. The first block of $25,000 capital stock issued under the above arrangement has all been taken up by our employees, and last year we issued another block of about $22,000. In the first block the payments were extended over a period of five years, the second for three years."

The James Walker Hardware Company, Montreal. In 1907 this company adopted an arrangement whereby five of the oldest of the employees of the firm were given an opportunity of subscribing for stock in the company at par, the net earnings thereon, less a percentage representing interest, to be applied as payment on the shares. Other employees benefitted under an arrangement whereby a certain sum was set aside for them, of which ten per cent., after deducting interest, was paid to them on a profit-sharing basis. This plan was not a success, and was discontinued because, as the company reports, "we found it did not accomplish the results desired. Our men seemed to feel that it was a gift, rather than something for which they had to work. As a matter of fact, with one exception, it did not produce any tangible evidence of the desire on the part of the recipient to exert himself for our mutual benefit."

The Steel Company of Canada.

The Steel Company of Canada. As an example of the more elaborate and detailed forms of profit-sharing, no better can be found than the system in force among the employees of the Steel Company of Canada, and the circular issued in June, 1913, is here printed in full:

"It is the desire of the Company that the employees should share in the success of the Company and, with this end in view, it offers them the opportunity to subscribe for Preferred Shares of the Capital Stock of the Company, on a basis which it believes will appeal to them as favorable.

"The Company has purchased a certain number of the Preferred Shares of the Company, and has secured an option on sufficient to bring the number up to 1,500 shares in all, costing the Company considerably more than the price at which it is offered to employees. Quarterly dividends have been paid since the inception of the Company on its Preferred Stock at the rate of 7 per cent. per annum. The employees are invited to subscribe for this stock on the following terms:

"1. The employees may subscribe for this stock at $83 per share, and the number of shares that they may subscribe for will be on the basis of salary or wages earned per year.

"2. Those employees who have earned $600 per year or less may subscribe for one share.

$600.00 to $900.00	2 shares.
900.01 to 1,300.00	3 shares.
1,300.01 to 1,800.00	4 shares.
1,800.01 to 2,400.00	5 shares.
2,400.01 to 3,000.00	6 shares.
3,000.01 to 3,700.00	7 shares.
3,700.01 to 4,500.00	8 shares.
4,500.01 to 5,400.00	9 shares.
5,400.01 and over	10 shares.

"3. In case the total subscription exceeds the amount of stock available, then the subscriptions will be scaled down as determined by the trustees.

"4. Payment for the amount of stock subscribed for by each employee shall be made in monthly instalments of at least $1.50 per share per month, to be deducted by the Company from the first payment in each month of employees' salary or wages.

The Purchase of Stock.

"Subscribers may agree to pay larger instalments than $1.50 per month, and so pay for their stock in a shorter time than four years, and so long as such subscribers continue in the employment of the Company, and continue to hold in their names the certificates for such stock, they will receive the same benefits and bonuses as other subscribers who have not taken advantage of the privilege of paying more than $1.50 per share per month; but, should such subscribers leave the Company, or sell their stock, they will forfeit any future benefits and bonuses.

"5. The subscriber may have not exceeding five years within which to pay his subscription. Interest at 6 per cent. per annum will be charged on all unpaid amounts.

"6. As an inducement to each employee under this plan to make his payments regularly, until the amount subscribed for is fully paid, and to retain his stock thereafter and to remain continuously in the employ of the Company, the Company, in the month of July in each of the four years, commencing July, 1914, will declare a bonus upon the stock so set apart for employees, which bonus, it is hoped, will be $5.00 per share, which, with regular monthly payments and dividends credited to each subscriber's account, less interest at 6 per cent. on unpaid amounts, should pay for this stock in less than four years.

"7. All who subscribe for this stock on this basis, and are on list which will close on July 1st, 1913, and who remain continuously in the employ of the Company during the period of repayment of this stock, will also share in a further bonus, which cannot now be ascertained, but which will be derived from the following sources, viz.:

"Those subscribers who, during the period of payment for stock, leave the employ of the Company, will not share in the bonuses which shall have been declared yearly by the Company on this stock, but the Company will, however, pay into a special fund each year those bonuses on this stock which would have been paid to subscribers had they continued with the Company. This fund shall also be credited with 6 per cent. annual interest, and at the end of the period, when all stock shall have been paid for by subscribers, the total amount thus accumulated will be divided into as many parts as shall be equal to the number of shares subscribed and paid for by subscribers who shall have continued in the employment of the Company continuously during five years.

When a Subscriber Leaves.

"8. In the event of a subscriber leaving the service of the Company before his stock shall have been fully paid for, he will not be entitled to receive any of the shares subscribed for, but he will be repaid the payments that he had made on account of the stock, with interest at 6 per cent. per annum, but he will not be entitled to any dividends or bonuses that have been credited to his stock account.

"9. In the event of a subscriber becoming so disabled that he will be permanently incapacitated from resuming his then occupation, or dying while in the service of the Company, his estate will be paid all payments made on account of his subscription, also any bonuses credited previously to

his disability or death; also dividends which have been credited, less interest on the unpaid purchase price at 6 per cent. per annum, and he may take this out in paid-up stock at purchase price, or cash, as he or his estate may decide, or he, or his estate, may pay the unpaid balance on subscribed for shares and receive certificates therefor, but in such case he, or the representatives of the deceased, will thereafter have no claim on future bonuses or benefits, and will have the status of an ordinary shareholder of Preferred Stock.

Case of Discontinuance.

"10. In case a subscriber discontinues working for the Company, owing to sickness, injury, or closing down of works where he is employed, for one month or more (not exceeding 120 days), monthly payments need not be made by him during such discontinuance of work.

"11. In the event of a subscriber being discharged from the Company, he will be entitled only to be repaid the payments that he has made upon the stock, with interest at the rate of 6 per cent. per annum thereon. If he should be in debt to the Company for any advances made on wages or salary or any other account, this indebtedness will be first paid out of any balance due him.

"12. All subscriptions by employees shall be made with the express understanding that the decision of the trustees, who will be appointed by the Company, shall be final with respect to the rights of the subscribers, and all questions relating to the same."

With regard to the success of this scheme, the Treasurer of the Company says: "This scheme worked out very well, and we are contemplating, just as soon as the second Victory War Loan is disposed of, giving our employees a further opportunity of purchasing preference shares." The allusion to the war loan is, of course, in reference to the facilities given by this company, and many others in Canada, to its work people, to purchase Victory Bonds on easy payments, the company advancing the funds for them to do so. Such a system would necessarily interfere with the selling of preference stock to the employees.

International Companies.

Two corporations, having their headquarters in the United States, but operating in Canada, the International Nickel Company, and the International Harvester Company, both have elaborate schemes of profit-sharing in operation, the benefits of which are extended to their employees in Canada. In view of the details already given of the system of the Steel Company of Canada, it will be superfluous to give these two systems in full, but one difference must be marked. In the system of the Steel Company of Canada there is no provision made with regard to the length of service in apportioning the number of shares an employee may purchase—the basis is solely that of the amount of salary drawn. In the other two schemes, the length of service is taken into account, as, for instance, according to the schedule of the International Nickel Company, those who draw salaries not over $825 and have served over five years with the company, may subscribe for two shares of the common stock; if they have served for less than five years, they can only purchase one share. The scale is thus carefully graduated up to a maximum of 10 shares, which may be purchased by an employee who has served 10 years and is drawing a salary of over $4,033.34 a year.

The Ford Profit-sharing Plan. Since this famous automobile manufacturing company operates a plant in Ontario, and the so-called profit-sharing system has attracted very considerable attention and interest, it will be fitting to say a little on the subject. In the first place it must be understood that, in the rigid acceptance of the word, the Ford plan is not profit-sharing, but an attempt to secure increased efficiency by paying abnormally high wages, made possible through extraordinary conditions of industry. The payments made to the men are made outright, as a part of the regular daily wage; they are not a stated percentage of the annual profits, nor in any way dependent upon the size of the profits. The report, already referred to, of the National Civic Federation, has some severe strictures of the system. "While the Ford plan may be an ideal one for that plant, it is not applicable generally throughout the manufacturing industry, and it is extremely doubtful if there are many concerns that could successfully adopt it. The Ford Company manufactures and sells a finished product, ready for delivery to the consumer, the market for which it is able to create. The company has practically no rivals in its own field and need not cut prices unless it sees fit to do so for the sake of larger sales and still larger gross profits. Therefore, it is able to fix its own wage scales, without reference to the conditions faced by concerns in close and active competition." "The Ford plan is founded essentially upon an extraordinary internal business condition, and, on its face, shows its impracticability of application. It is also bad economics from the point of view of the business community."

Other Examples in Canada.

We have now recorded most of the profit-sharing schemes, either in operation or defunct, which call for any particular notice. Besides these, there are quite a number of firms which have profit-sharing systems, although several cannot really be called more than the granting of a bonus at the discretion of the management, such not being strictly profit-sharing. Among such are The Dunlop Tire Co., The Wm. Davies Co., The Western Fuel Co., of Nanaimo, B.C., The American Bank Note Co., Ottawa, The Lincoln Paper Mills Co., of Merritton, Ont., The Calgary Street Railway Co., and The Frost Wire Fence Co. Several of the chartered banks make a practice of giving an annual bonus to their staffs. Messrs. Strains, Ltd., opticians, of Winnipeg, started profit-sharing among their employees in January, 1917, the company agreeing "that, after paying all salaries and wages, as heretofore, and paying all stockholders eight per cent. annually on the book value of the stock of Strains Limited, and after making allowance of two per cent. for reserve fund, and deducting a reasonable amount for depreciation of furniture, fixtures and equipment, we will then take the surplus profit and divide it among the employees, in proportion to their yearly wages or salaries." The Canadian Copper Company, of Copper Cliff, Ont., have had a profit-sharing system in operation for some years. In answer to an enquiry as to its success, the President of the Company, says: "The scheme has been entirely satisfactory, and very well received by the employees. We are, however, contemplating a change this year, and, in lieu of issuing stock to employees, we propose financing them in buying Victory Bonds, paying for them on the instalment plan and scattering the payments over one year. We will charge them the same rate of interest that they receive on the bonds."

A very ambitious scheme was announced in 1910 by the Wattsburg Lumber Co., of British Columbia, which undertook not only to issue shares to employees, of which three-fourths had been paid up, but also to build cottages and grant land for the work people. There is no record to show whether this succeeded, and inquiries have failed to bring any further news.

This completes the record, so far as research has been

able to discover, of the various schemes for profit-sharing and labor co-partnership in Canada. The reasons why the system has not been more successful in the different countries, where it has been tried, have already been sufficiently explained; but, perhaps, one word more may be added with regard to conditions peculiar to Canada. Trade unionism is not, as yet, greatly developed in Canada, and unionism is admittedly the foe of profit-sharing, but other causes, quite as strong, have prevented profit-sharing from gaining much ground in the Dominion. Labor is very fluid, and the chances of a man being able to better himself so great, that the turn-over in the labor force is exceptionally high. Wages are high, and the chances of an ambitious man stepping from the wage-earning class to the employer or independent class are very good; in Canada, the old saying, "once a workman always a workman" has little or no force. Finally, the opinion of Mr. Aneurin Williams, as to the reasons for the slow progress of profit-sharing in the United States may well be quoted:[14] "The material development of the country has been too rapid, the increase in the production of wealth too great, and the openings for men of ability, even without capital, too tempting, for many of the most active minds to concern themselves much with the improvements in industrial relations and the system of sharing wealth."

The Self-Governing Workshop.

Turning now to the third variation of purely capitalistic production, we find there has always been, and in England and Scotland there would appear at the present time increasingly to be, a connection between the co-operative movement and socialistic theories.

"The first definite form taken by the aspiration for the democratic control of industry, as soon as the socialistic idea emerges out of the stage of Utopian Communism, seems always to have been that of a voluntary association of workmen themselves, collectively owning the instruments of production, jointly directing their own industry, and sharing among themselves their common product. Such associations appear both to avoid many of the difficulties of the independent individual producer, and to offer an easy and logical alternative to the capitalist system. At one stroke the co-operating workers are emancipated from their subjection to an employer, and are able to enjoy the whole product of their labor."[15]

The idea of a self-governing workshop is a very simple one, and at first sight would seem of easy accomplishment. A number of skilled workers determine to co-operate together in producing a certain commodity. If capital is needed to start the business, they club together and raise sufficient to start themselves in a small way. A set of rules is drawn up to govern their procedure, and one of their number is elected as manager, and generally two or three more of themselves as directors. Work is started, and the commodity is put on the market; the money realized from the sales of which is divided among the partners, according to their contributions to the capital fund. Generally, the participants agree to work for very small wages, in order to get the best possible return on their capital. The theory is excellent, but, unfortunately, the result is only too often—indeed, it may even be said, inevitably—a failure. The reasons for this, not only in Canada, but all over the world, may be seen when a few examples of this form of enterprise are studied.

It is hard to say, with complete accuracy, the number of self-governing workshops that have been instituted at different times in the Dominion, as these little experiments have been tried from time to time, and in different localities, and the record of them lost. As far as can be ascertained, however, the following examples are the only ones of which any trace can be found, and will exhibit many of the characteristic features which have marked the experiments in Europe.

A Short-Lived Scheme.

The Knights of St. Crispin. This powerful, but short-lived, union among shoemakers flourished between 1867 and 1877 in the United States, and spread into Canada. Like the Grange, it spread very fast, only to die down again with equal rapidity. It did not have very much influence in Canada; the number of lodges, at most, was seventeen, in 1870, located in St. John, New Brunswick, Quebec, Toronto, Guelph, Hamilton, and other towns. "Co-operation" was one of its leading tenets, and many attempts were made, both in consumers' and producers' co-operation, to carry out its principles.

In Canada, the only attempt was at St. John, where, in February, 1869, fifteen members of the order started a co-operative shoemaking factory. In six months they had 150 members, had hired a factory, and put in machinery. Stock was issued at $50 a share, and was sold exclusively to members of the order. A capital of $20,000 was raised, and the most up-to-date machinery installed. Dealers in Boston offered to purchase the entire output, but the members refused, seeking to enter the market themselves. The factory was successful for some time, but, as the Order of St. Crispin declined, the enthusiasm for co-operative methods abated also, and, after various vicissitudes, the factory became purely capitalistic in form.

The Ontario Co-operative Stone-cutters' Association, of Welland, was formed in June, 1878, for the purpose of taking contracts in masonry. This was at the time of the building of the Welland Canal, when a great deal of masonry work was being done in the district. This association took a contract to build a bridge and culvert on the canal, but was not able to carry the work through. The usual troubles broke out soon after operations were begun, and the association failed, because, in the words of one of the members, "everybody wanted to be boss."

Co-operative Cigar Makers.

The Toronto Co-operative Cigar Manufacturing Association was started in January, 1879, and The Toronto Co-operative Union Baking and Milling Company in April, 1884, but of neither of these ventures can any trace be found, although it is quite certain that they both failed.

In 1906 The Berlin Co-operative Cigar Co. was started on profit-sharing lines. Seven cigar-makers invested $200 each, all working together in the factory, and receiving the union rate of wages. Profits were divided equally, and there was one silent partner in the company, who held the position of foreman; each shareholder had one vote. Several more workmen were employed from time to time, and worked under union rules and wages. The company worked along with very fair success for some time, but sold out in 1907, owing to hard times.

In 1913 The Imperial Bag-Holder Co., of Lucknow, Ont., was started. Ten local men joined their small capital together, and bought the rights for manufacturing a patent bag-holder. Each man was required to subscribe a minimum of $100, while $500 was the maximum that could be subscribed by any one, in shares of $100 each. Four directors received certain fees, and they chose one of themselves as

[14] Co-partnership and Profit-sharing, Chap. vii, p. 146.

[15] The New Statesman, Feb. 14, 1914. Special Supplement on Co-operative Production and Profit-sharing.

manager, who received a small salary. The members received very low wages, and participated in the profits, no one being allowed to work in the shop who was not a subscriber.

Most unfortunately, the scheme was not a success, and, after running for a couple of years, closed down in the spring of 1915. The reasons for the failure were the all-too-familiar ones—lack of experience in organizing the work of a factory, lack of capital, and, perhaps, the most important reason of all, lack of harmony among the members. For a short time, enthusiasm, and belief in the worth of the article being turned out, kept the members together, but soon dissensions arose, and lack of confidence in the manager began to militate against success. The original manager was forced to resign, and another brought in from outside on a salary basis. But he, being dependent on the goodwill of the men under his direction for his position, was utterly unable to enforce discipline, and he very soon resigned, after which the factory closed down.

The Electric Car Manufacturing Company, of Tillsonburg, was formed of experienced and high-class men in this line, who were employed at Picton, and became dissatisfied because the company they were working for would not let them buy stock in it. A company was formed in Tillsonburg, the workmen keeping the control of the business in their own hands and working in the shops themselves. Lack of adequate capital caused the failure of this venture, and the factory closed down on the outbreak of war in 1914.

Co-operation at Regina.

In March, 1915, the Co-operative Builders, Ltd., was registered in Regina, Sask., as a co-operative company, for the purpose of taking contracts on a sharing system. It was organized on a permanent basis, being capitalized at $20,000, divided into 400 shares at $50 each. The board of management was composed of twelve directors and a secretary, who received a salary as secretary-manager. The Articles of Association limited the voting power of shareholders and directors to one vote for each share, up to five votes, but no shareholder or director might control more than five votes, no matter what number of shares he might own or control. The profits of the company were divided as an annual dividend under the provisions of the Joint Stock Company Act.

The secretary-manager had control of the offices of the company, doing the estimating and tendering, but on each contract secured a foreman was appointed who, in all cases, was a director of the company. The company also bought and sold coal, wood and other articles, which may be purchased in wholesale lots. The Trades Halls in Regina and Saskatoon were co-operatively built and are controlled by the trades unions.

Such is the rather melancholy story of the various attempts in Canada at realizing the ideals of the self-governing workshop. It would appear that only in a very few and rare cases has the system succeeded in any country or at any time. France is the only country which shows success of any kind, and there are only a few and isolated cases. It will be recalled that it was the co-operative workshop that almost broke the hearts of that noble little band of Christian Socialists that gathered round Maurice and Kingsley sixty years ago in England.

The reasons for failure given in the *New Statesman* are identical with those found in the Canadian experiments—lack of discipline, lack of capital, lack of knowledge in the running of a commercial enterprise, and a lack of knowledge of the market for which they have to produce.

The conclusions drawn from the history of the movement are not very encouraging for future experiments, and may be quoted in the words of the authors of the report:

"We find that the lesson to be drawn from the whole experience of Associations of Producers in all their varieties, in all the different countries in which they have been tried, is that the self-governing workshop, with all its derivatives, whatever may be its attractiveness to the manual worker, does not afford, alone and by itself, in mining or manufacturing industry, a practicable basis of organization."

Big Pacific Coast Enterprise

What the Management of the Pacific Mills, Limited, has Accomplished During Past Year

On Couzen's Inlet, about 230 miles north of Vancouver, the Pacific Mills, Limited, representing a syndicate of wealthy San Francisco and Portland capitalists, has created one of the greatest industrial enterprises in Canada, and one that will vie with the best of its type on the American Continent, when the plans of the men in control are fully realized. An army of men has been employed on construction work for almost two years, but much remains to be done, to both plant and townsite, before the plans in hand are pronounced complete.

The first paper-making unit of the big plant began operations June 1st, one newsprint and one kraft paper machine, giving an output of about ninety tons per day. A second unit is now completed, and will contain two of the largest type of paper-making machines; one of these is already in place, and will be started up early in the new year, while the second has arrived from the eastern factory, and the parts are now being assembled, preparatory to erection. With the two units working to capacity, the output will be in the neighborhood of 230 tons of paper every twenty-four hours.

A modern sawmill of mammoth dimensions breaks down the pulp logs for the digestors, after all the clear lumber has been taken off. At the present time, considerable spruce aeroplane stock is produced, and plans are being perfected which will result in the output being very greatly increased. The starting of the second, and larger, unit means that the log output must be trebled, at least, and, with the coming of spring, woods operations will be systematized, and conducted on a very large scale. Orders for the necessary equipment—all of the most modern kind—were placed several months ago, and some of it has already been delivered. The company owns very extensive pulp limits, and will operate a standard-gauge railway, and four or five powerful tugs.

The town of Ocean Falls enjoys a picturesque location, and the company is leaving nothing undone that will add to the comfort and happiness of the population, which is principally made up of the workmen and their families. Now, there are about 2,000 citizens, but, when everything is in full swing, next spring, the town will contain over 5,000 people.—*Contract Record.*

A Winnipeg despatch states that E. F. Hutchings, president of the Great West Saddlery Company, of that city, and one of the best-known financiers in Manitoba, is head of a syndicate that has secured a tentative contract to build twelve ships on the Pacific Coast. The message adds that representatives of the company are now on the coast, conducting negotiations for a site for shipbuilding yards, and that the establishment of a new industry would mean an ultimate investment of $20,000,000.

A Co-operative Industrial Plan for Canada

Best and Biggest Results in Research Work Are Said to Accrue from the Closer Co-operation of Industries Engaged in the Same Line of Manufacture or Using the Same Materials

By E. W. REYNOLDS

HAVING to break new ground with very little in the way of a practical precedent to guide them, those in charge of scientific investigations often find it hard to differentiate or discriminate. This is a serious difficulty confronting the scientific and industrial investigators in Britain and Canada, although, in all honesty, it must be pointed out that the British investigators have been encouraged by a greater degree of sympathy and authoritative interest in their efforts than has characterized the interest in the labors of Canadian investigators.

In Canada there seems to be an inherent conviction that it is up to the manufacturing interests to do all the work; there is a marked prejudice against doing anything of this nature for the "men who are going to make the profits out of the results of the investigations." Very little, if anything at all, is said about the amount of money spent on behalf of the farmers, who have been taught to make no move, almost, before the Government has investigated and proven the commercial value of the recommendation.

Nobody criticizes the Government for doing this, because it is a natural function of Government; but why discriminate against the manufacturers? The duty of the manufacturer is to make up his goods and find a market for them. It is the duty of the Government to discover the potential value of the country's resources, and make investigations in the interest of the community as a whole. For this reason, Governments, responding to the needs of the people, especially in the case of war-time emergency, have formed organizations for the purpose of scientific or industrial research.

Many Suggestions Considered.

Many plans and suggestions have come before the Canadian Council of Scientific and Industrial Research, and it is known that some have been placed before the Government only to be spurned, because "they do not render immediate practical assistance to Canada's war work." Anything that renders assistance to the Canadian people at any time, now, or in the future, has a potential value, and anything that will help the manufacturer fight his great battle after the war, is just as much a war measure as many of the measures being now adopted by the Government. The dismissal of the suggestion to briquet lignites, as a means of preventing the Western people from paying $22 a ton for anthracite, apparently gives point to the argument that some of the authorities do not fully appreciate the extent and scope of the term "war measure."

When it was suggested that the Canadian Manufacturers' Association should ask the Advisory Board to co-operate with our industries, to the end that information bureaus might be organized to supply information to manufacturers about new processes, and to institute laboratories for the solution of industrial problems, the Government was petitioned to see that such sums of money as might be necessary for putting this plan into operation were placed in the estimates, so that immediate action might be possible. The late Government, failing to appreciate the vital importance of the scheme, and fearing the initial expenditure required, timidly refrained from any definite action.

Under these circumstances, the Canadian Advisory Council of Scientific and Industrial Research is said to be now evolving a plan that, it happens, is very similar to the principle governing the formation of the old-time trading companies of Great Britain. The suggestion will be placed in the hands of the Government in due course.

Results From Co-operation.

It has been discovered, after much labored effort, and much expenditure of money on other more complicated forms of assistance, that the best and biggest results accrue from the closer co-operation of the industries classified according to their merchandise, or the nature of their output. Therefore, the British authorities, at least, and it is stated that the German authorities are copying the same system, say that, if the firms in an industry, which are engaged in the production of similar articles; or, alternatively, if the firms in different industries, which make use of the same or similar raw or semi-manufactured materials, will combine to improve those articles or materials, the authorities will contribute liberally to a joint fund for this purpose. The fund for each industry will, of course, be expended by a committee or board appointed by the contributing firms in that industry, and the results obtained will be available for the benefit of the contributing firms.

The British Government has already created a precedent the Canadian Government might follow. It has placed a million sterling at the disposal of the Research Department of the British Advisory Council of Scientific and Industrial Research, and this money will go a long way towards minimizing the difficulties the early peace period will impose upon the industrial world. The manufacturing interests have reached their present state of efficiency themselves, and the independence of the manufacturers, with their own initiative, coupled with the scientific and financial support the Canadian Government could give them, will do much towards rehabilitating and expanding Canada's international trade after the war.

Should be Independent.

While support is needed, and the Government should render all support possible, it is absolutely essential that the industries and the manufacturers shall be independent of the Government. If the assistance is to be effective, it must increase the average independence and initiative of the manufacturer. The British Council takes a definite stand in this connection. These scientists and practical business men affirm that the manufacturers, in receiving assistance from the Government, must not be chained to the routine of Government administration, no matter how efficient. The aid must be given in a way that enlists their active support. To the initiative of the manufacturer, the improvement of old and the discovery of new, industrial processes in this and other countries, have largely been due.

It is because the old-time guilds became so closely associated with the Government of the day that they lost their individuality and power, and degenerated to mere social organizations, with reputations for gluttony that were only outlived, or held down, during the later years of the Victorian era, when they took up a great deal of charitable work. Instead of looking after the welfare of their trade, they gave more attention to the election of governments, and their industrial progress became so dependent upon the whims of the Government of the day that they lost their identity in the Government, and other trade organizations sprang up to take the place of the City Companies. This is a lesson that must be learned by the Canadian industrial organizations. If they should lose their influence and identity by too close an alliance with the Government of the day, they will minimize their effectiveness in the business life of the country, and their usefulness to the individual member.

It is very easy to realize and recognize the many difficulties in the way of a proper and adequate segregation or classification of industries for this purpose. Homogeneity is one big obstacle. Some industries are only interested in research because they are users of certain materials which are susceptible of improvement, and these materials are also used by other industries. Maybe in some cases it will be possible to establish an association out of one industry, while, in other cases, only a section of the industry could combine with any degree of efficiency.

One British authority states that the most likely line of advance may be found in an association of firms in a number of industries which happen to use the same materials. It appears to be certain, however, from that, that some firms will wish to belong to more than one combination for research purposes, and that, if wasteful effort is to be avoided, every possible means must be adopted to encourage co-operation between different research organizations, as well as between the several firms within the same organization.

Results That Will Accrue.

What results will accrue from the work and investigations of such a class of organizations? It is stated that the firms subscribing to such a research organization as referred to here, would receive the following benefits and privileges:

(1) They would receive a regular service of summarized technical information, which would keep them abreast of the technical developments in the industry, at home and abroad. To do as much for themselves, firms would have to employ more than one man on their staffs, reading and translating the technical press.

(2) They would be able to obtain a translated copy of any foreign article in which they might be specially interested, and to which their attention would have been drawn by the periodical bulletin.

(3) They would have the right to put technical questions and to have them answered as fully as possible, within the scope of the research organization, and its allied associations.

(4) They would have the right to recommend specific subjects for research, and if the committee or board of the research organization of that industry considered the recommendation of sufficient general interest and importance, the research would be carried out without further cost to the firm making the recommendation, and the results would be available to all the firms in the organization.

(5) They would have the right to the use of any patents or secret processes resulting from all researches undertaken, either without payment for licenses, or at any rate, on only nominal payment, as compared with firms outside the organization.

(6) They would have the right to ask for a specific piece of research to be undertaken for their sole benefit, at cost price, and, if the Governing Committee or Board approved, the research would be undertaken.

Individual Industry to Contribute.

To make the British plan a complete success in Canada, the individual industry will be required to contribute towards the cost of maintenance, etc., which the Government will also do. But, to make it an unqualified success, it appears to be necessary that the Government shall also inaugurate a large and fully completed institution, for the carrying on of scientific investigation and research. It is known that the Canadian Advisory Council of Scientific and Industrial Research has recommended the inauguration of such an institution, located at some central point, near a university. The placing of such an institution under one roof would produce a maximum of benefit through centralization. Each department would be of assistance to the others when required. The results of experiments in all parts of the Dominion could be forwarded to the one central body, and notes compared, in the interest of uniform development. Such an institution, working with other industrial associations, would produce the utmost good, and render material assistance to the country in the hour of need.

If this plan can, or will, be worked with considerable success in Britain, France, Germany, or elsewhere, why not in Canada?

SELECTION OF FACTORY SITE.

Points that Should be Considered in Picking Out a Place for the Location of a Factory.

In selecting the site for a new factory several points have to be observed. The position should be on firm and well drained soil, more particularly where high chimneys have to be erected, and the subsoil should be good where heavy weights have to be carried. Otherwise the cost of piling and concrete may very well exceed the cost of the superstructure. Facilities for transport must also be good—canal work, being cheap, although slow; while railways give the advantage of speed, but at a high cost. In either case the direct loading at the works is to be preferred where possible, as handling and carrying goods from works to loading places becomes very expensive. Public lighting and water services should be within reasonable distance, and sewerage should be available, if possible. In addition, the supply of labor is an important point, there either being housing accommodations handy, or there being rail or street-car accommodations within a short distance. Unless the workers are fresh when they arrive at the plant they cannot do full service, and persons having to walk several miles are not in a fresh and fit condition for work by any means. Another point is to get as near the source of raw materials as possible, since this makes for considerable saving, concludes *The Practical Engineer*. It should always be borne in mind that the raw materials, being the more bulky, cost more for transportation than the finished product.

A delegation from the Vancouver and Victoria Boards of Trade recently waited on the Provincial Government, and urged that the Pacific Great Eastern Railway should be extended to Fort George, and thence to the Peace River.

Transportation Conditions and the War

An Outline of What the Railways Had Accomplished Prior to the Formation of the Canadian Railway Association for National Defence and What They Have Since Done Under the Direction of That Organization

(War Board Bulletin No. 1)

EVERY traveller, and every shipper affects, one way or another, the two main problems of the Canadian railroads: Fuel consumption and freight car economy. In asking the support of the public for its work, the Canadian Railway Association for National Defence offers the following summary of conditions leading to, and arising out of, its formation:—

The crisis in the American coal situation had made it necessary to assure the United States that coal supplied to Canada was being used for necessary purposes only. To reduce Canadian coal consumption, the railways had been asked to co-ordinate their services, so as to prevent any overlapping or duplication of service, which still might exist in Canada. The formation of the Canadian Railway Association for National Defence resulted. This was in October, 1917.

To that date, the domestic traffic of the Dominion had been kept moving expeditiously, despite war conditions, with the exception of one brief period, due to an unprecedented period of cold weather and heavy snowstorms, in the winter of 1916-17.

The international freight train traffic had been satisfactory up to the time when certain organizations outside of Canada broke down, owing to the special difficulties under which they were operating.

What Had Already Been Done.

Meantime, the Canadian railways had made progress, as follows, in meeting war conditions in their own sphere, before the formation of the Association:

They had carried 400,000 troops from recruiting points to concentration centres, and from concentration centres to training grounds, and training grounds to ports of embarkation.

These men had been fed and "slept" better than were the troops of any other belligerent nation mobilizing over such an extended area.

Over seventy thousand laborers for Europe had been carried across the continent. These also had been fed and "slept" under railway management.

The colossal new burden of coal carrying, due to the taking of coal vessels from the St. Lawrence and the lakes for ocean service, had been assumed.

The reduction of staffs to furnish army recruits had been met, in part, by adapting women to certain forms of work, and leaving some in abeyance—a step which has contributed largely to the present urgent need for extra labor for the season's work on the railways.

The sudden shiftings and reversals in the tides of traffic —in their general direction and character—had been dealt with successfully.

First, the onset of a northbound movement of raw materials, inbound for Canadian munition factories; second, the development of inter-munition plant traffic, in partly finished, and finished, shells; third, the increased volume of foodstuffs for export; fourth, the hundreds upon hundreds of cars of remounts; fifth, the sudden task of focusing all this traffic in two Canadian ports, in such a way as to meet Admiralty requirements; and, sixth, the cessation of northbound traffic, due to the reduction in munitions trade, and the flow of Canadian raw materials, some of them never before exported from Canada, into the United States.

Meantime, the passenger train service had been reduced to the extent of 10,000,000 passenger train miles per year, a yearly saving of some 500,000 tons of coal.

The volume of grain handled out of Western Canada in the fall of 1917 was 12.1 per cent. higher than the volume for the same period in 1916.

This was the record up to October, 1917, when this Association was formed.

What the Association Has Done.

The chief reason for creating the Canadian Railway Association for National Defence was the necessity for conserving fuel during the winter months. The desirability of embodying, in concrete form, the co-operative spirit, which, up to this time, had been casual and informal, among the Canadian railways, was secondary.

In both respects, the Association has made progress.

First, as to fuel; the speed of all trains has been so regulated as to give the maximum of tractive effort from a given amount of coal.

Passenger train service has been reduced still further, so as to effect a saving of another 2,000,000 passenger train miles per year, making the total Canadian economy in this respect such that the American railways, to equal it, would have to cut off, proportionately, 110,000,000 passenger train miles, instead of the 20,000,000, which, at the time of writing, is their record in reductions.

100 Pounds Per Mile.

The Canadian reduction means a saving of, approximately, 100 pounds of coal per mile, or on 12,000,000 miles—600,000 tons per annum. Further reductions are under way.

Second, as to further co-ordination of railway service, the Railway War Board took charge, in a supervising way, of all traffic difficulties, and worked out the speediest relief of any congestion or shortage that threatened.

Potato cars were loaned from one road, to meet the shortage on another road, in the Maritime Provinces. Calls for refrigerator cars, apple cars, engines, box cars—all kinds of equipment—were met through the direction of the Board.

Weather conditions on the line leading from some of the Western coal fields caused temporary embarrassment, which was energetically dealt with by the co-operation of all roads, through the Board.

A special officer was sent to supervise the coal handling at the Niagara Frontier, with excellent results.

Meantime, a campaign for economy in the ordering of cars, and in using their space, has been promoted.

The surplus of Canadian freight cars in the United States is being steadily reduced, through pressure applied.

At the time of going to press, the Canadian Railway War Board has succeeded in having 5,300 empty and overdue

Canadian boxcars started back for Canada. Of these, already 2,893 have been received empty, and 1,300 have come in loaded with anthracite, to relieve the coal shortage in this country. Others are being released by the Americans, and being received at frontier points every day. These numbers are, in addition, to the normal reciprocal exchange in Canadian and American cars, which goes on very much as usual at the various points of interchange.

These are first things accomplished by the Canadian railways, working through their Association. Other matters, even more important, remain to be dealt with.

The Outlook.

The car shortage, which has been ameliorated, will, it is hoped, be entirely relieved by persuading shippers to load cars to their maximum capacity, instead of to less than half their capacity, as has been the practice in the past. Steps will be taken, also, to impress upon shippers and consignees the seriousness of holding cars longer than necessary.

In all these things, and in future work which cannot now be anticipated, the sympathetic co-operation of the Canadian people—shippers, consignees and the travelling public—is a prime necessity. The Canadian Railway Association for National Defence asks for public support for a work, vital alike to the individual Canadian and the safety and triumph of Nation and Empire in the world war.

The Future of Aluminum

Canada and Norway Possess Great Advantages in Process of Reducing Purified Alumina to Metal

By JOS. W. RICHARDS
(From the "Manufacturers' News")

To write anything satisfactorily upon the past, present and future of aluminum, in a few words, is not an easy task. Most readers of this journal are familiar with the beginnings of the industry, about the time of the invention of the Bessemer process, the middle of the last century. But the great hopes of Deville were never realized, the infant industry in France remaining an infant for twenty-five years. The industry began to grow into a promising youth in 1890, with the rise of the Hall process, and reached manhood strength and development only with the beginning of this century. The centre of the industry has moved from France to North America, and of the nearly 100,000 tons produced annually, the United States figures for approximately two-thirds.

The sources of raw material, bauxite, have not changed much in many years. France has the largest deposits, and really still exerts a controlling influence upon the industry in Europe, from her command of the raw material. Purification of the raw material is essentially a manfacturing chemical operation, and has developed largely in the United States, Great Britain, France, Belgium and Germany.

Reduction of purified alumina to metal is an electrolytic operation, requiring large amounts of cheap power. In this matter, countries like Canada, Norway and the Alps possess great advantages, and the final step of reduction gravitates toward these countries. Norway in Europe, and Canada in America, loom up as the future centres of aluminum production, but are dependent upon other countries for their supply of raw materials. Most of the large companies are, therefore, international in scope, working the mines in one country, purifying the raw material in another, and producing the metal in still another.

As a war material, aluminum finds many uses. Aluminum time fuses for shrapnel are used in place of brass, several million having been put into shells made in the United States for the Russian Government. Several thousand tons of aluminum wire have been used in the point of the modern long-tapered rifle bullets—the copper-nickel sheath has a small pellet of aluminum inserted in its point, the remainder being filled with lead. This gives a flatter trajectory and increased accuracy of fire. Machine guns of the air-cooled type use aluminum radiators. The explosive "ammonal," consisting of powdered aluminum and ammonium nitrate, is being used in large quantities by all combatants in the present war. Aerial construction has absorbed large quantities of aluminum. Each large Zeppelin contains about nine tons of aluminum framework.

There is no longer any question of the status of aluminum as an "every-day" metal. Its use for cooking utensils has made it a household friend, and this still figures as its largest potential use. In automobiles it is a necessity, and almost one-third of all that is made is thus consumed. It is now a common, useful servant of mankind, in a thousand ways, undreamed of twenty-five years ago. Its introduction into common use has been one of the greatest achievements of the nineteenth century.

Since the outbreak of the war it has become increasingly difficult to get statistics of any reliability concerning the course of the aluminum industry. Even the promoters of the industry in America profess ignorance regarding the development of the industry in Europe.

It can be assumed with considerable confidence, however, that the industry has prospered greatly and increased in output, except in Switzerland and Austria. In these countries, the producing company is controlled by German capital.

What of its future? Its use and its usefulness will continue their rapid rate of increase; it will become cheaper after the war, and will rank with the half dozen metals most useful to mankind. The present output of 100,000 tons yearly will reach 1,000,000 tons before the middle of the century, and in net usefulness to mankind it will stand beside copper and be surpassed only by iron and steel.

CLEAR SPRUCE FOR AIRPLANES.

Important Lumbering Developments are Resulting in Northern British Columbia.

The recent demand for clear spruce for the construction of airplanes, and the sharp advance from $50 to $90 per thousand feet of this lumber, have created great activity in the timber districts of Northern British Columbia, and especially on the Queen Charlotte Islands, where spruce is found in large quantities. A new sawmill is being erected by certain interests at Prince Rupert, the intention being to supply it with logs, rafted across Hecate Strait. The old sawmill plant, at the mouth of the Kheyex River, has been acquired by Vancouver capitalists, and its capacity will be increased to 75,000 feet per day. Improvements are being made at other sawmill properties, that have either been idle, or working on half time, and every effort is being made to push production as rapidly as possible. The new mill, at Prince Rupert, and the one at Kheyex River, are expected to employ about one hundred men each.

It is reported that the British-American Nickel Co. may possibly abandon their plans for the establishment of a refinery at Sudbury, Ont., owing to the impossibility of developing Hydro power on the French River at a cost of less than $46 per h.p. The report states that they contemplate locating in the Ottawa Valley, where there is at present developed a surplus of power over local consumption.

U.S. Commodities Requiring Export Licenses

Conservation List Has Been Virtually Abolished and the Following List Takes Its Place, Those Commodities Marked with a Star Requiring the Export License

A.

Abrasives, all.
*Abrasives, emery, X-2.
Acetanilide.
*Acetate of cellulose and all acetates, X-2.
*Acetic acid, X-2.
*Acetic acid, glacial, X-2.
Acetic anhydride.
*Acetone, X-2.
*Acid, carbolic (phenol), X-2.
*Acid:
*Acetic, X-2.
*Glacial acetic, X-2.
Hydrofluoric.
*Phosphoric, X-2.
*Stearic, X-1.
*Nitric, X-2.
*Sulphuric, X-2.
*Acid phosphate, X-2.
*Aeronautical instruments.
*Aeronautical machines.
*Alcohol.
*Alcohol, wood, X-2.
*Alloys:
*Nickel.
*Steel.
Aloxite wheels.
*Alum, X-2.
*Alum, chrome, X-2.
*Alum, potash, X-2.
*Alumina, sulphate of, X-2.
*Aluminum.
*Aluminum, articles made entirely thereof.
Aluminum, articles containing.
*Alundum grain, X-2.
*Alundum wheels, X-2.
Amidoazobenzol.
Amidophenol.
(Paraamidophenol.)
*Ammonia and its salts.
*Ammonia, anhydrous, X-2.
*Ammonium nitrate, X-2.
*Ammonium sulphate, X-2.
*Ammonium chloride, X-2.
*Ammonium bromide, X-2.
*Ammonium carbonate, X-2.
*Ammunitions, X-2.
*Amorphous phosphorus, X-2.
Angles:
Iron.
Steel.
*Anhydrous ammonia, X-2.
Aniline oil.
Aniline salts.
*Animal fats, X-1.
*Animal hair, X-2.
*Animal oils, X-1.
*Anti-aircraft instruments, apparatus, and accessories.
*Antifriction metal.
*Antimony.
Antimony, black.
Antimony:
*Sulphate of, X-2.
*Sulphide of, X-2.
*Antimony ore.
Apparatus:
*Anti-aircraft.
*Radio, X-2.
Telephone.
*Wireless, X-2.
X-ray.
*Apples, dried, X-1.
*Apricots, dried, X-1.
*Arms, X-2.
*Arsenate of lead, X-2.
*Arsenate of soda, X-2.
*Arsenic and compounds thereof, X-2.
*Asbestos, X-2.
*Ash, wood, X-2.
*Ash, soda.
*Ashes, hardwood.
Auto grease
Automatic guides.

B.

*Babbitt metal.
*Bags, jute, X-2.
Bags, vegetable fiber, except cotton bags.
Bagging, vegetable fiber, except cotton bagging.
*Bacon, X-1.
*Balata, X-2.
Balls, naphthaline.
*Barium:
Nitrate of.
Sulphate of.
*Barley, X-1.
*Bars, copper, X-2.
Beams:
Iron (of all sizes).
Steel.
*Beans, X-1.
*Beans, castor, X-2.
*Beef products (canned, preserved, and fresh), X-1.
*Belting, leather, X-3.
*Belts, fan (if leather), X-3.
Bench drill vises.
*Benzaldehyde, X-2.
Benzene.
Benzine.
Benzine oil.
Benzol and its derivatives.
Beta-naphthol.
*Bichromate of potash, X-2.
*Bichromate of soda, X-2.
*Billets, steel, X-2.
*Binder twine (for reaping machines), X-2.
Binocular (for marine use).
*Birch wood, X-2.
*Bismuth salts.
*Bisulphite, sodium.
Black antimony.
*Blancfixe (sulphate of barium), X-2.
Bleached soda pulp.
*Blood, dried, X-2.
*Blooms, steel, X-2.
*Bluestone (copper sulphate), X-2.
*Blue vitriol, X-2.
Boards, pulp.
Boiler fire box.
Boiler fittings.
*Boiler pipes, X-2.
*Boiler plates, copper, X-2.
Boiler plugs.
*Boiler tubes:
*Iron, X-2.
*Steel, X-2.
*Copper, X-2.
*Boilers, ship, X-2.
Boilers, steam.
Bolt-heading machines.
*Bone flour.
*Bone, ground.
*Bone meal.
*Bookbinders' tin stitching wire.
*Book paper.
Boots and shoes of leather.
*Boring machines, horizontal.
*Boring mills (vertical, all sizes).
Boring tubes.
*Brass, and articles of (unless containing less than 10 per cent. copper), X-2.
*Brass, other articles of.
Broaching machines with countershaft.
*Bromide ammonium, X-2.
*Bromide potassium, X-2.
*Bronze, and articles of (unless containing less than 10 per cent. copper), X-2.
*Bronze, other articles of.
*Buckram (flax), X-2.
Bunkers.
*Burlap, X-2.
*Butter, X-1.
*Butter, substitutes, X-1.
*Butter, peanut, X-1.
*Button lac, X-2.

C.

*Cable, stud-link chain.
*Cable, copper or insulated, X-2.
*Cable and strands consisting of six or more wires, X-2.
*Cable, all other classes.
*Calipers.
*Calcium nitrate, X-2.
Can-maker machines.
Candles, paraffin.
*Candles, stearic acid, X-1.
*Candles, tallow, X-1.
Cane knives.
*Canned corn, X-1.
*Canned fish, not shellfish, X-1.
*Canned peas, X-1.
*Canned pilchards, X-1.
*Canned sardines, X-1.
*Canned tomatoes, X-1.
*Carbolic acid (phenol), X-2.
Carbons, electric-light.
*Carbon, electrodes, X-2.
Carborundum.
*Carbonate of ammonium, X-2.
Carrier and other pigeons.
Car seals.
*Casings, oil-well.
*Castor beans, X-2.
*Castor oil, X-2.
*Castor oil, sulphurated, X-2.
*Cattle, X-1.
*Cattle manure.
*Caustic potash, X-2.
*Caustic soda, X-2.
Cellulose.
*Cellulose, acetate of, X-2.
*Cereals (oatmeal, rolled oats), corn, hominy, corn grits, corn meal, corn flour, rice flour, X-1.
*Chain, stud-link, open-link, made from material 1 inch and over in diameter.
Channels:
Iron (all sizes).
Steel.
*Cheese, X-1.
*Chestnut extracts, X-2.
*China wood oil, X-2.
*Chloride of ammonium, X-2.
*Chlorate of potash, X-2.
*Chlorate of sodium, X-2.
*Chlorates, all other.
Chlorbenzol (monochlorbenzol).
*Chrome alum, X-2.
*Chrome nickel steel.
*Chrome steel.
*Chromium:
Ore, and any metal or ferroalloy thereof, X-2.
*Chromium, chemical compounds thereof and their products, X-2.
Chucks, drill.
*Chucks, lathe.
*Cinchona bark.
*Citrate, potassium, X-2.
*Clippings:
*Khaki, X-5.
*Wool, X-5.
*Cloth, emery, X-2.
Clothing, leather.
Coal, X-2.
*Cobalt:
Ore, and any metal or ferroalloy thereof, X-2.
*Cobalt, chemical compounds thereof, X-2.
Cocoanut, desiccated.
*Cocoanut oil, X-1.
*Cod-liver oil.
Coin, silver and gold. Application must be made to any Federal Reserve Bank or to the Treasury Department, Washington, D.C.
Coke, X-2.
Colza, mineral.
*Condensed milk, X-1.
Condensers.
*Cooking fats, X-1.
*Copper:
Ore, and any metal extracted therefrom or ferroalloy thereof, unless less than 10 per cent. of copper, X-2.
*Copper, chemical compounds thereof, X-2.
*Copper bars, X-2.
*Copper cable, X-2.
*Copper ingots, X-2.
*Copper plates, X-2.
*Copper rods, X-2.
*Copper scrap, X-2.
*Copper sheets, X-2.
*Copper sulphate, X-2.
*Copper tools, X-2.
*Copper tubes, X-2.
*Copper wire, X-2.
*Copper, all articles of (unless containing less than 10 per cent. of copper), X-2.
*Copper, all other articles of.
*Copra, X-1.
*Corn flour, X-1.
*Corn hominy, X-1.
*Corn, Indian (samp), X-1.
*Corn grits, X-1.
*Corn (maize), X-1.
*Corn meal, X-1.
*Corn oil, X-1.
*Corrugated copper gaskets, X-2.
*Corundum wheels and stones.
Cotton:
*Egyptian and sea-island.
*Cotton linters, X-2.
*Cotton seed, X-1.
*Cottonseed meal, X-1.
*Cottonseed cake, X-1.
*Cottonseed oil, X-1.
Cresols.
*Crucibles.
Crude turpentine.
Cutters, looper, for knitting machines.
Cutters, milling.
*Cyanamide, X-2.
*Cyanide of sodium, X-2.
*Cyanides (all), X-2.
*Cylinder oil.

D.

Desiccated cocoanut.
Dextrine.
*Diamonds, industrial, X-2.
Dies and taps (machine).
Dimethylaniline.
Dinitrophenol.
(Metadinitrobenzol.)
Dinitrochlorbenzol.
Dinitrophenzol.
Diphenylamine.
*Dried apples, X-1.
*Dried apricots, X-1.
*Dried blood, X-2.
Dried fish.
*Dried peaches, X-1.
*Dried prunes, X-1.
*Dried raisins, X-1.
Drill chucks.
Drilling implements and machinery with accessories for oil wells.
*Drilling machines, radial.
Drill presses.
*Drill presses, except sensitive.
Drill rods.
*Drills (carbon and high-speed twist).
Dry paste flour.

E.

*Edible grease, of animal or vegetable origin, X-1.
Eggs.
Electric-driven pumps.
Electric generators.
Electric lamps.
Electric-light carbons.
*Electrodes, carbon, X-2.
Electric motors.
Electrical equipment, all.
Electrical instruments.
*Electrodes, graphite, X-2.
*Emery and emery cloth, X-2.
*Emery grain or flour suitable for grinding optical glass or lenses, X-2.
*Emery, Naxos, X-2.
*Emery wheels, X-2.
Engines (except locomotives).
Epsom salts.
Ether.
*Ethylmethyl ketone, X-2.
Exhaust pipes.
Explosives, X-2.

F.

*Fan belts (if leather), X-3.
*Fats, animal, X-1.
*Fats, cooking, X-1.
*Fats, all other, X-1.
*Feeds and fodder, X-1.
*Ferric alum.
*Ferrochrome, X-2.
*Ferrocobalt, X-2.
*Ferrocyanide potash.
*Ferromanganese, X-2.
*Ferromolybdenum, X-2.
*Ferronickel, X-2.
*Ferrosilicon, X-2.
*Ferrotitanium, X-2.
*Ferrotungsten, X-2.
*Ferrovanadium, X-2.
*Fertilizers, including—
*Acid phosphate, X-2.
*Ammonium sulphate X-2.
*Bone flour.

*Bone meal.
*Cattle and sheep manure.
*Cyanamide.
*Dried blood.
*Ground bone.
*Guano.
*Hardwood ashes.
*Humus.
*Land plaster.
*Nitrate of soda, X-2.
*Phosphate rock.
*Potash.
*Potassium salts, X-2.
*Potato manure.
*Poudrette.
*Soot.
*Superphosphate, X-2.
Films, all:
Moving picture.
Scrap.
Fire box, boiler.
*Fireroom parts, X-2.
Fish:
*Canned (not shellfish), X-1.
Dried.
Fish, fresh—not shellfish.
Fittings, boiler.
*Flake graphite, X-2.
*Flannelette raisings (wool), X-5.
*Flax, and all articles containing flax, X-2.
*Flax, and all manufactured articles containing flax which are manufactured in the United States, X-2.
*Flaxseed, X-1.
*Flour, X-1.
*Flour:
*Barley, X-1.
*Bone.
*Corn, X-1.
Dry paste.
*Rice, X-1.
*Rye, X-1.
*Wheat, X-1.
Fluoride, sodium.
*Fodder and feeds, X-1.
*Fodder hulls, X-1.
*Food grains, X-1, including, among others, barley, rice, oats, rye, wheat, and flour and meal therefrom, X-1.
*Fodder, X-1.
Fresh fish, not shellfish.
*Fruit, dried, X-1:
*Apples, X-1.
*Apricots, X-1.
*Peaches, X-1.
*Prunes, X-1.
*Raisins, X-1.
*Fuel oils.

G.

*Gaskets, corrugated copper, X-2.
Gasoline.
Gas motors.
Gauges for steam boilers.
*Gauze (hospital), X-2.
Generators, electric.
*German silver, X-2.
*Glacial acetic acid, X-2.
Glass, optical.
Glass reflectors.
Glauber salts.
*Glucose, X-1.
*Glycerin, X-2.
Gold coin. Application to be made to any Federal Reserve Bank or Treasury Department.
*Grain, alundum, X-2.
*Grains, food, X-1:
*(Flour and meal therefrom), X-1.
*Graphite, X-2.
*Graphite electrodes, X-2.
Grease, auto.
*Grease of animal or vegetable origin (edible or inedible), X-1.
*Grinders, internal, plain, and universal.
*Grinding heads.
*Grinding wheels, X-2:
Made of emery or other abrasives.
*Grindstones, power driven.
*Ground bone.
*Guano.
Guides, automatic.
*Gum lac, X-2.
*Gum opium.
*Gutta-joolatong, X-2.
*Gutta-percha, X-2.
*Gutta-siak, X-2.

H.

*Hair, animal, X-2.
*Hand-lantern oil.
*Hardware, finished articles containing more than 10 per cent. of copper, X-2.
*Hardware, all other articles containing copper.
*Hardwood ashes.
Harness.
Heaters, super.
*Hemp and manufactures thereof, X-2.
*Hides, X-3.
*High-speed steel.
*Hogs, X-1.
Holders, turret.
*Hoof oil, X-1.
*Horses.
*Hospital gauze, X-2.
*Hulls, fodder, X-1.
*Humus.
Hydrofluoric acid.

I.

Implements, drilling, and machinery accessories for oil wells.
*Indian corn (samp), X-1.
*Industrial diamonds, X-2.
*Inedible grease, X-1.
*Infants' food, X-1.
*Ingots, X-2:
*Copper, X-2.
*Steel, X-2.
Instruments:
Aeronautical.
Anti-aircraft, apparatus, and accessories.
Electrical.
Optical.
*Wireless, X-2.
*Insulated cable, X-2.
*Insulated copper, X-2.
*Insulated copper wire, X-2.
*Iridium, X-2.
*Iron boiler tubes, X-2.
Iron, fabricated:
Structural, including beams, channels, angles, tees and zees, and plates fabricated and shipped knocked down.
Iron mirror.
*Iron, pig, X-2.
*Iron plates, including ship, boiler, tank, and all other iron plates ⅛ inch thick and heavier and wider than 6 inches and circles over 6 inches in diameter. This includes No. 11 U.S. gauge, but not No. 11 B.W. gauge, X-2.
*Iron and steel scrap, X-2.
Iron and steel shapes:
Angles (all sizes).
Beams (all sizes).
Channels (all sizes).
Tees and zees.
Iron, specular.
Iron, sulphate of.
*Iron wire rope.

J.

Jelly, petroleum.
Juice, meat.
*Jute and products (including cloth bags, gunnies, twine, etc.), X-2.

K.

Kerosene.
*Khaki clippings, X-5.
Knife-grinding machinery (power driven).
Knives (sugar cane).

L.

Lamps:
Electric.
Nitrogen.
*Land plaster.
*Lantern oil.
*Lard, X-1.
*Lard compound or lard substitutes, X-1.
*Lathes, all sizes.
*Lathe chucks.
Lathe tools.
Lead.
*Lead, arsenate of, X-2.
Lead, white (dry).
*Leather.
Leather boots.
*Leather belting, X-3.
Leather clothing.
Leather shoes.
*Leather, sole, X-3.
*Leather upper.
Lenses, optical.
*Lenses, unmounted and searchlight.
*Linen, X-2.
Linseed.
*Linseed oil, X-2.
*Linters, cotton, X-2.
*Live stock, X-1.
Loopers.
Looper cutters for knitting machines.
Lubricants.
*Lumber, yellow pine, 12 by 12 inches by 25 feet, X-2.

M.

Machetes.
Machines:
*Aeronautical (and instruments), their parts and accessories.
Bolt heading.
Boring, horizontal.
Broaching, with countershaft.
Can maker.
Condenser.
*Drilling, radial.
Engines (except locomotives)
Knife grinding (power driven).
Metal working.
*Milling, plain and universal (except hand millers).
Oil-well drilling.
Pumps.
Sawmill (iron and steel).
Screw.
Screw, automatic.
Turbines.
Woodworking.
*Machine tools:
*Horizontal and vertical boring machines.
*Radial drills.
*Upright drills (except sensitive).
*Milling machines (except hand millers).
*Grinders (plain, universal, and internal).
*Slotters.
*Planers (30-in. and larger).
*Lathes, all sizes.
*Magnesium, sulphate, X-2.
Magnifiers, optical.
*Mahogany wood, X-2.
*Maize (corn), X-1.
*Malt, X-1.
*Manganese:
Ore and any metal or ferro-alloy thereof, X-2.
*Manganese, chemical compounds thereof, X-2.
*Manganese oxide, X-2.
*Manila rope, X-2.
*Manure:
*Cattle.
*Potato.
*Sheep.
*Meal:
*Bone.
*Corn, X-1.
*Cotton seed, X-1.
*Oil cake, X-1.
Meat juice.
*Meats, all, X-1.
Meats and fats, including—
*Butter, X-1.
*Copra, X-1.
*Corn oil, X-1.
*Cottonseed oil, X-1.
Desiccated cocoanut.
Fish, fresh, dried, X-1.
*Grease, edible or inedible, of animal or vegetable origin, X-1.
*Lard, X-1.
*Linseed oil, X-1.
*Peanut butter, X-1.
*Peanut oil, X-1.
*Pigtails, X-1.
Poultry.
*Rapeseed oil, X-1.
*Stearic acid, X-1.
*Tallow, X-1.
*Tallow candles, X-1.
*Tinned milk, X-1.
*Mercury and its salts, X-2.
*Metals:
*Antifriction.
*Babbitt.
*Metal, type.
Metal-working machines.
*Metal-working planes (30-inch and larger).
*Methylethyl ketone, X-2.
*Mica, X-2.
*Mica splittings, X-2.
*Micrometers and calipers.
*Milk, condensed, powdered, evaporated, or preserved, X-1.
*Milk, sugar of, X-2.
*Milk, tinned and powdered, not fresh, X-1.
Milling cutters.
*Milling machines, plain and universal, ecept hand millers.
*Mills, boring, vertical, all sizes.
*Mineral oil.
*Mineral-oil colza.
Mirror iron.
*Molasses, X-1.
*Molybdenite, X-2.
*Molybdenum, X-2.
*Molybdenum, chemical compounds thereof, X-2.
Motors:
Electric.
Gas.
Steam.
Moving-picture films.
*Mules.

N.

Naphtha.
Naphtha oil.
Naphthalene.
Naphthalene balls.
*Naxos emery, X-2.
*Neat's-foot oil, X-2.
*News paper (news print paper).
*Nickel and nickel alloys.
*Nickel, articles containing.
*Nickel (more than 5 per cent):
*Ore.
*Any metal or ferroalloy thereof.
*Nickel, chemical compounds thereof.
*Nickel steel chrome.
*Nitrate of ammonia, X-2.
*Nitrate of barium.
*Nitrate of calcium, X-2.
*Nitrate of potash, X-2.
*Nitrate of silver.
*Nitrate of soda, X-2.
*Nitric acid and its salts, X-2.
*Nitroacetanilide. (Paranitroacetanilide.)
*Nitroaniline.
*Nitrobenzol, X-2.
*Nitrochlorbenzol. (Paranitrochlorbenzol.)
*Nitrocresols.
Nitrogen lamps.
*Nitronapthalenes, X-2.
*Nitrophenol, X-2. (Paranitrophenol.)
*Nitrotoluol, X-2. (Orthonitrotoluol.) (Paranitrotoluol.)
*Nitroxylols.
*Nitrosodimethylaniline.
*Noils, wool and worsted, X-5.

O.

Oakum.
*Oak, wood, X-2.
*Oatmeal, X-1.
*Oats, X-1.
*Oats, rolled, X-1.
Oils, including—
Aniline.
*Animal, X-1.
Benzine.
*Castor, X-2.
*Castor, sulphurated, X-2.
*China wood, X-2.
*Cod liver, X-2.
*Corn, X-1.
*Cotton seed, X-1.
*Cylinder.
*Fuel.
*Gasoline.
*Hand lantern.
*Hoof, X-1.
*Kerosene.
*Lantern.
*Linseed, X-2.
*Lubricating.
*Mineral.
Naphtha.
*Neat's-foot, X-2.
*Oleo, X-1.
*Palm, X-1.
*Paraffin.
*Peanut, X-1.
*Rapeseed, X-1.
Red.
*Vegetable, X-1.
*Oil cake, X-1.
*Oil-cake meal, X-1.
*Oleo oil, X-1.
*Oleomargarine, X-1.
*Oil-well casings.
Oil-well drilling implements and machinery and accessories.
*Olive oil, X-1.
*Open-link chain made from material 1 inch and over in diameter.
*Opium, gum.
Optical glass.
Optical instruments:
Lenses.
Magnifiers.
Reflectors.

P.

*Palm oil, X-1.
*Paper:
*Book.
*News print.
*Poster.
*Print.
White enamel book.

Paraffin:
Candles.
Oil.
Wax.
Paranitraniline, X-2.
Paste, soup.
*Peaches, dried, X-1.
Peanuts.
*Peanut butter, X-1.
*Peanut meal, X-1.
*Peanut oil, X-1.
*Peas, including seed, X-1.
*Peas, canned, X-1.
Petrolatum.
*Petroleum.
Petroleum jelly.
*Phenol (carbolic acid) and its derivatives, X-2.
*Phenolphthalein, X-2.
Phosphate:
Rock.
Sodium.
*Super, X-2.
*Phosphoric acid, X-2.
*Phosphorized 5 per cent. tin, X-4.
*Phosphorus, X-2.
*Phosphorus, amorphous, X-2.
*Phosphorus, yellow, X-2.
Pigeons, carrier and others.
*Pig iron, X-2.
*Pigtails, X-1.
*Pilchards, canned, X-1.
Pillar presses, power-driven.
*Pine, yellow, lumber, 12 by 12 inches by 25 feet, X-2.
*Pipes:
Boiler, X-2.
Exhaust X-2.
Planers.
*Planers (metal working, 30 ins. and larger).
Plaster, land.
*Plate:
*Terne, X-4.
*Tin, X-4.
*Plated ware (brass, copper, nickel), X-2.
*Plates:
*Boiler, X-2.
*Copper, X-2.
*Tank, X-2.
Plates, screw, for cutting thread.
*Platinum, X-2.
Plugs, boiler.
*Plumbago (graphite, imported and unmanufactured), X-2.
*Pork and pork products (including bacon, fatbacks, sausages, hams, fresh pork), X-1.
*Poster paper.
*Potash, X-2.
*Potash alum, X-2.
*Potash:
*Bichromate of, X-2.
*Caustic, X-2.
*Chlorate of, X-2.
*Nitrate of, X-2.
*All other potash salts, X-2.
*Potassium bromide, X-2.
*Potassium chlorate, X-2.
*Potassium citrate, X-2.
*Potassium permanganate, X-2.
*Potassium salts, X-2.
*Potato manure.
Potential transformers.
*Poudrette.
Poultry.
*Powder, soap.
*Powdered milk, X-1.
*Power-driven grindstones.
*Prepared foods (infants'), X-1.
*Presses:
Drill, except sensitive.
Pillar, power-driven.
*Primers, X-2.
*Print paper.
Printing type.
*Products, wool (suitable for military purposes), X-5.
Profilers.
Propeller shafts.
*Prunes, dried, X-1.
Prussiate of soda.
Pulp, bleached soda.
Pulpboards.
Pumps, steam and electric driven.

Q.

*Quebracho extract, X-2.
*Quicksilver, X-2.
*Quinine, sulphate of, X-2.

R.

*Radio apparatus and all accessories, X-2.
*Rags, wool, X-5.
*Raisings, flannelette (wool), X-5.
*Raisins, dried, X-1.
*Rapeseed oil, X-1.
*Raw wool, X-5.
Reamers.
Reflectors:
Glass.
Optical.
*Searchlight, X-2.
*Unmounted, X-2.
*Rice, X-1.
*Rice flour, X-1.
Red oil.
Rock phosphate.
Rods:
*Copper, X-2.
Drill.
*Rolled oats, X-1.
*Rope, manila, X-2.
Rosin.
Rosin oil.
*Rubber, X-2.
*Rubber scrap, X-2.
*Rye, X-1.

S.

Saccharin.
*Saddletrees.
Saddles.
*Sal ammoniac, X-2.
*Saltpeter, X-2.
Salts:
*Ammonia.
Aniline.
*Bismuth.
Epsom.
Glauber.
*Nitric.
*Potassium, X-2.
*Samp, Indian corn, X-1.
Sawmill machinery (iron and steel).
*Scoured wool, X-5.
*Scrap, copper, iron, and steel, X-2.
Scrap films.
*Scrap, rubber, X-2.
Screw machines.
Screw machines, automatic.
Screw plates for cutting thread.
Seals, car.
Seamless tubes.
*Searchlight reflectors and lenses.
*Searchlights.
*Searchlights and generators suitable for Army and Navy use, X-2.
*Seed peas, X-1.
*Seedlac, X-2.
Shafts, propeller.
*Sheelite, X-2.
*Sheep, X-1.
*Sheep manure.
*Sheet bars, steel, X-2.
*Sheets, copper, X-2.
*Shellac, X-2.
*Ship boilers, X-2.
Ship stores.
Shoes, leather.
*Shooks (oak, birch, mahogany, walnut), X-2.
Shooks, spruce.
made to any Federal Reserve Bank or Treasury Department, Washington, D.C.
*Silver, German, X-2.
Silver-plated ware.
*Silver-plated ware on brass, copper.
*Silver nitrate.
*Sirup, X-1.
*Sisal, X-2.
*Sisal (binder twine), X-2.
*Skins, X-3.
*Slabs, steel, X-2.
*Slotters.
*Soap, X-1.
*Soap powder.
*Soda ash, X-2.
Soda:
*Arsenate of, X-2.
*Bichromate of.
*Caustic, X-2.
*Nitrate of, X-2.
Pulp, bleached.
Prussiate of.
Sulphate of.
*Sodium.
*Sodium benzoate, X-2.
Sodium bisulphate.
*Sodium, cyanide, X-2.
Sodium fluoride.
Sodium phosphate.
Sodium sulphite, X-2.
*Solder.
*Sole leather, X-3.
Soot.
*Soya-bean meal, X-1.
*Soya-bean oil, X-1.
Soup paste.
Specular iron.
Spelter.
*Spiegeleisen, X-2.
Sponges.
Spruce, wood.
*Starch, X-1.
*Staves (oak, ash, birch, walnut, mahogany).
Staves, spruce.
Steam boilers.
*Steam-boiler tubes, X-2.
Steam-boiler gauges.
*Steam-boiler gauges (brass, copper, nickel).
Steam-driven pumps.
Steam motors.
*Stearine, X-1.
*Stearic acid, X-1.
*Stearic-acid candles, X-1.
*Steel:
*Chrome.
*Chrome nickel.
*High-speed, tool, and alloy.
*Steel alloys.
Steel, fabricated, structural, including beams, channels, angles, tees and zees, and plates fabricated and shipped knocked down.
*Steel-hardening materials.
*Steel ingots, X-2.
*Billets, X-2.
*Blooms, X-2.
*Sheet bars, X-2.
*Slabs, X-2.
*Steel plates, including ship, boiler, tank, and all other steel plates ⅛ inch thick and heavier and wider than 6 inches and circles over 6 inches in diameter, whether plain or fabricated. This includes No. 11 U.S. gauge, but not No. 11 B.W. gauge, X-2.
*Steel wire rope.
*Steel and iron scrap, X-2.
Steel shapes:
Beams (all sizes).
Channels (all sizes).
Angles (all sizes).
Tees and zees (all sizes).
*Steel:
*Tool.
*High-speed.
*Stick lac, X-2.
Stones, corundum.
Stores, ship.
*Strontium ores, X-2.
*Stud-link chain cable.
*Sugar, X-1.
Sugar of milk.
*Sulphate:
*Copper, X-2.
*Zinc.
*Sulphate of alumina, X-2.
*Sulphate of ammonia, X-2.
*Sulphate of antimony.
Sulphate of barium.
Sulphate of iron.
Sulphate of magnesium.
*Sulphate of quinine, X-2.
Sulphate of soda.
*Sulphide of antimony (stibnite).
Sulphite, sodium, X-2.
*Sulphur, X-2.
*Sulphurated castor oil.
*Sulphuric acid, X-2.
Superheaters.
*Superphosphate, X-2.
Surgical instruments.
*Swine, X-1.

T.

Tachometers.
*Tails, pig, X-1.
*Tallow, X-1.
*Tallow candles, X-1.
*Tamales, X-1.
*Tank plates, X-2.
Taps and dies (machine).
Tees:
Iron.
Steel.
Telephone apparatus.
*Terne plate, X-4.
Tetranitroaniline.
Tetranitroethylaniline.
Tetranitromethylaniline.
*Tin, all articles containing, X-4.
*Tin and any metallic alloy containing tin, X-4:
*Chloride of tin, X-4:
*Tin boxes, except when used as food containers, X-4.
*Tin canisters, except when used as food containers X-4.
*Tin foil, X-4.
*Tin ore, X-4.
*Tin tetrachloride, X-4.
Tinned milk (fresh).
Tinned milk (preserved in any manner), X-1.
*Tin, phosphorized 5 per cent., X-4.
*Tin plate, X-4.
*Terne plate, X-4.
*Titanium, X-2.
*Tolidin, X-2.
*Toluidine, X-2.
(Orthotoluidine.)
(Paratoluidine.)
*Toluol, X-2.
*Toluol derivatives, X-2.
*Tomatoes, canned, X-1.
*Tool steel.
*Tops, wool and worsted, X-5.
*Toys (containing tin, brass, nickel, aluminum).
Toys (containing lead, zinc).
Transformers, potential.
*Trinitrotoluol, X-2.
Tubes:
*Boiler, X-2.
*Copper, X-2.
*Iron, X-2.
*Steel, X-2.
Tubes, seamless.
*Tungsten:
Ore, and any metal or ferro-alloy thereof, X-2.
*Tungsten, any chemical compound thereof, X-2.
Turbines.
Turpentine.
Turpentine, crude.
Turret holders.
*Twine, binder, X-2.
Twist drills.
*Type, metal.
Type, printing.

U.

*Upper leather.

V.

*Vanadium, X-2.
Vaseline.
*Vegetable oil, X-1.
Vises (bench drill).
*Vitriol, blue, X-2.
Vegetable fiber bags and bagging, except cotton bags and bagging.

W.

*Walnut, wood, X-2.
*Waste, wool and worsted, X-5.
Wax, paraffin.
*Welting.
*Wheat, X-1.
*Wheat flour, X-1.
Wheels:
Aloxite.
*Alundum, X-2.
Corundum.
*Emery, X-2.
*Grinding, X-2.
*Wire, iron and steel rope or cable or strand consisting of six wires or more, X-2.
*White enamel book paper.
White lead (dry).
White zinc (dry).
*Wire, bookbinders' tin stitching.
*Wire, copper, X-2.
*Wireless apparatus and accessories, X-2.
*Wolframite, X-2.
Wood:
*Ash, X-2.
*Birch, X-2.
*Mahogany, X-2.
*Oak, X-2.
Spruce.
*Walnut, X-2.
*Yellow pine, measuring 1 by 1 by 25 feet and larger sizes, X-2.
*Wood alcohol, X-2.
Wood pulp.
Woodworking machinery, power-driven.
*Wool, X-5:
*Clippings, X-5.
*Products suitable for military purposes, X-5.
*Rags, X-5.
*Raw, X-5.
*Scoured, X-5.
*Wool and worsted noils, X-5.
*Wool and worsted tops, X-5.
*Wool and worsted waste, X-5.
*Wool and worsted yarns, X-5.

X.

X-ray apparatus.
Xylidine.
Xylol.

Y.

*Yarns, wool and worsted, X-5.
*Yellow phosphorus, X-2.

Z.

Zees:
Iron.
Steel.
Zinc.
Zinc sulphate.
Zinc, white (dry).

CUSTOMS ORDERS.

The Commissioner of Customs has issued the following directions to Collectors of Customs, affecting this country's foreign trade, viz.:—

IMPORTATIONS OF SOUPS TO BE DETAINED PENDING ANALYSIS.

Ottawa, 21st January, 1918.

Customs Officers are requested to carry out the Order of the Department of Inland Revenue in the above matter as hereinafter set forth.

ORDER RESPECTING ARTIFICIAL DYE IN CANNED SOUP.

Department of Inland Revenue,
Ottawa, 21st January, 1918.

A recent analysis of samples of imported soup has revealed the fact that foreign manufacturers are not complying with the standards established for "Coloring Matter in Foods," which require that when foods such as soup are artificially colored, the presence thereof must be declared upon the label in easily legible type.

Under the provisions of Section 28 of the Adulteration Act importations of imported soups are now ordered to be withheld from delivery at the Customs House until such time as a sample has been forwarded to the nearest Collector of Inland Revenue, for transmission as promptly as possible to the Inland Revenue Laboratory at Ottawa, or the nearest Sub-Laboratory of the Department, as the case may be, for examination, the results of which will be communicated to the Collector of Customs through the same channel, and importation authorized or refused as the circumstances warrant.

WAR MEASURES—PROHIBITED EXPORTS OF EXPLOSIVES.

Ottawa, 24th January, 1918.

An Order in Council in regard to the prohibition of exports of nitro-glycerine and explosives, as set forth below, was passed on the 19th January, 1918.

Customs Officers will be governed accordingly.

(P.C. 150) At the Government House at Ottawa,
Saturday, the 19th day of January, 1918.

Present—His Excellency the Governor-General in Council.

His Excellency the Governor-General in Council, on the recommendation of the Minister of Customs and under and in virtue of the provisions of Section 291 of the Customs Act and Section 6 of the War Measures Act, 1914, is pleased to Order as follows:—

The Order in Council of the 27th April, 1915, prohibiting the exportation of certain goods to various destinations is hereby amended by deleting from the list of articles the export of which is prohibited to all destinations abroad other than the United Kingdom, British Possessions and Protectorates, the following headings, viz:—

Explosives of all kinds.

The exportation of the following articles is hereby prohibited to all destinations, viz:—

Nitro-Glycerine.—Any explosive containing glycerine.

The exportation of the following goods is hereby prohibited to all destinations abroad other than the United Kingdom, British Possessions and Protectorates, viz:—

Explosives of all kinds, other than those containing glycerine, the export of which is prohibited to all destinations.

This Order in Council shall be proclaimed by publication in the *Canada Gazette*.

WAR MEASURES—PROHIBITED IMPORTS OF INTOXICATING LIQUORS.

Ottawa, January 26, 1918.

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL.

Whereas the War Committee of the Privy Council reports that there is urgent necessity for conserving all the energies and resources of Canada for the vigorous prosecution of the present war;

And whereas the War Committee recommends that for the purpose of preventing waste, and for the promotion of thrift and economy, the conservation of financial resources, and the increase of national efficiency, the importation of intoxicating liquors be prohibited during the continuance of the war, and for one year thereafter,—

Therefore, His Excellency the Governor-General in Council, on the recommendation of the Right Honourable the Prime Minister and under and in virtue of the provisions of the War Measures Act, 1914, is pleased to make the following regulations, and the same are hereby made and enacted accordingly:

Regulations.

1. No intoxicating liquors shall be imported or brought into Canada on or after the 24th day of December, one thousand nine hundred and seventeen, unless actually purchased for importation into Canada before that day, and actually shipped by the vendor or consignor on or before the 31st day of January, one thousand nine hundred and eighteen, and unless evidence satisfactory to the Minister of Customs of the purchase and shipment having been so made is submitted to the said Minister.

(2) The provisions of this Regulation shall not apply to (*a*) wine for use in Divine Service; (*b*) to intoxicating liquor for medicinal purposes; or (*c*) to intoxicating liquor for manufacturing or commercial purposes other than for the manufacture or use thereof as a beverage; provided that in any such case a special license permitting the importation into Canada of such wine or intoxicating liquor for such purpose has been granted by the Minister of Customs, based upon a formal written evidence of permission, granted by the competent provincial authority to the importer, to possess and use or deal in such wine or intoxicating liquor for such purpose, or, if the Government of the province to which such wine or intoxicating liquor is destined has made no provision for such formal procedure, upon other evidence of such purpose satisfactory to the said Minister.

2. For the purposes of these Regulations, any beverage or liquor containing more than two and one-half per centum of proof spirits shall be deemed to be an intoxicating liquor.

3. These Regulations shall continue in force during the continuance of the present war, and for twelve months thereafter.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

Instructions.

4. Collectors of Customs may permit entry and delivery of intoxicating liquors for beverage purposes under the above provisions of subsection 1, of section 1, upon evidence to the satisfaction of the Collector that the liquors were actually purchased for importation into Canada before the 24th day of December, 1917, and have been actually shipped by the vendor or consignor on or before the 31st day of January, 1918,—provided a statement also to this effect, written on the face of the Customs Entry, be signed and attested to by the importer or his agent.

5. Applications for Special License to import (*a*) wine for use in Divine Service; (*b*) intoxicating liquor for medicinal purposes; and (*c*) intoxicating liquor for manufacturing or commercial purposes, other than for the manufacture thereof as a beverage, should be made through the Collector of Customs where such wines and liquors are intended to be entered for duty, under the provisions of subsection 2 of section 1 of the above Regulations.

The applicant for such Special License should also deliver to the Collector of Customs with his application the formal written evidence prescribed to be furnished under said subsection 2.

JOHN MCDOUGALD,
Commissioner of Customs.

NEW UNITED STATES REGULATIONS REGARDING EXPORTS.

After February 1st, 1918, a new export application form is required to be used in place of all forms hitherto in existence. It is now the only application form in use for United States exporters. This new United States export application form is known as Form X. Various supplementary information forms should be used in connection therewith, according

to the particular commodity to be exported. The further supplementary information form required to be used in each case in connection with Application Form X is indicated opposite each item "starred" on pages 1493 to 1495. The United States shipper can readily obtain these application forms in the United States, either at Washington, or at one of the branch offices. The branch offices of the United States War Trade Board are as follows:—

Galveston, Tex. ..... George W. Briggs, Bureau of Exports, Federal Building.
Los Angeles, Cal. ..... William Dunkerley, Bureau of Exports, International Bank Building.
Mobile, Ala. ..... M. Waring Harrison, Bureau of Exports, Custom House.
New Orleans, La. ..... Joseph P. Henican, Bureau of Exports, 308 Canal Bank Building.
New York, N.Y. ..... William E. Peck, Bureau of Exports, 45 Broadway.
Philadelphia, Pa. ..... Edward C. Dixon, Bureau of Exports, 305 Lafayette Building.
Portland, Oreg. ..... Henry L. Corbett, Bureau of Exports, 748 Morgan Building.
San Francisco, Cal. .. . C. O. G. Miller, Bureau of Exports, 212 Custom House.
Savannah, Ga. ..... J. W. Motte, Bureau of Exports, Savannah Bank & Trust Co. Building.
Seattle, Wash. ..... J. MacPhee Ferguson, Bureau of Exports, 825 Henry Building.

The foregoing forms may also be obtained from F. C. T. O'Hara, Deputy Minister of Trade and Commerce, Ottawa, or from the Tariff Department of the Canadian Manufacturers Association, Traders Bank Building, Toronto.

UNITED STATES SHIPPERS' EXPORT DECLARATIONS.

Washington has also prescribed for use during the period of the war, and until further notice, a single-sheet form of shippers' export declaration, Customs Cat. No. 7525, which must be filed with the Collector of Customs at the port of exportation for all goods exported from the United States on and after February 1st, 1918. This form, however, appears to be for the purpose of accurate record of United States exports, primarily for statistical purposes, and has no connection with the procedure for licensing by the War Trade Board of United States restricted exports.

PARIS GOES WITHOUT CHOCOLATE CANDIES.

The Paris Association of Chocolate Manufacturers (Chambre Syndicale des Chocolatiers de Paris), because of the shortage of sugar and as the result of an interview with the Minister of Food Supply (Ministre de Ravitaillement), has decided hereafter to make only tablet chocolate and to abandon entirely the production of the various forms of chocolate candy, such as cream chocolates. The Association has requested the Minister to take the necessary steps to prohibit the manufacture of chocolate candies throughout France. It has also requested that under these circumstances the importation of such products be likewise prohibited.

(Commerce Reports, Washington, Jan. 24, 1918.)

FOREIGN TRADE OF CANADA

(Comparison 1915, 1916, 1917.)

IMPORTATIONS.

	Month of December.			Nine Months ending December.		
	1915	1916	1917.	1915	1916	1917
Dutiable Goods	$24,805 899	$38,177,116	$36,363,034	$197,950,486	$330,791,068	$426,719,371
Free Goods	20,884,822	29,723,418	25,271,628	145,972,837	271,850,406	335,662,916
Total	45,690,721	67,900,534	61,634,662	343,923,323	602,641,474	762,382,287
Coin and Bullion	9,429,288	611,512	657,769	19,902,003	22,994,423	10,247,976
Grand Total	55,120,009	68,512,046	62,292,431	363,825,326	625,635,897	772,630,263
Duty Collected	9,242,125	12,085,082	10,860,805	71,305,304	106,378,729	125,796,330

EXPORTATIONS.

Month of December.

	——1915——		——1916——		——1917——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$5,632,984	$207,652	$8,457,039	$42,446	$5,026,041	$152,423
The Fisheries	2,067,132	8,429	2,630,149	106,449	3,016,059	65,357
The Forest	3,553,083	2,764	4,262,423	9,409	3,836,909	6,147
Animals and their Produce	9,430,534	330,383	12,882,235	768,867	11,433,910	336,543
Agricultural Products	49,389,763	36,303	47,213,553	804,883	91,216,447	259,232
Manufactures	21,810,697	673,545	54,261,266	664,372	33,635,790	1,367,510
Miscellaneous	287,209	164,125	330,509	100,405	246,763	287,917
Total Merchandise	92,171,402	1,423,201	130,037,174	2,496,831	148,411,919	2,475,129
Coin and Bullion	20	101,322	5,000	142,143	265	125,920
Grand Total Exports	92,171,422	1,524,523	130,042,174	2,638,974	148,412,184	2,601,049

EXPORTATIONS.

(Nine Months ending December.)

	——1915——		——1916——		——1917——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$49,034,177	$7,265,059	$63,725,560	$202,715	$55,498,616	$702,985
The Fisheries	16,103,698	85,945	18,075,556	171,412	21,510,180	340,518
The Forest	42,184,929	384,089	46,138,448	304,987	42,512,114	51,103
Animals and their Produce	78,559,429	2,193,963	93,586,906	3,916,500	136,353,322	4,857,670
Agricultural Products	202,506,936	17,111,054	317,451,445	5,130,017	475,338,003	9,179,195
Manufactures	119,399,269	5,752,596	317,841,414	6,163,671	522,963,430	18,420,270
Miscellaneous	3,745,610	1,183,089	4,810,484	1,135,660	3,509,235	1,793,083
Total Merchandise	511,534,048	33,975,795	861,629,813	17,024,962	1,257,684,900	35,344,824
Coin and Bullion	115	103,151,019	76,392	195,970,726	237,933	2,503,051
Grand Total Exports	511,534,163	137,126,814	861,706,205	212,995,688	1,257,922,833	37,847,875

Freight Increase Postponed

Text of the Order-in-Council Delaying Enforcement of Previous Order Until March 15th

The 15 per cent. increase in freight rates, which was to have gone into effect on February 1st, has been postponed until March 15th, by an order of the Privy Council. The order, to which great importance naturally attaches, reads as follows:—

P. C. 229.

PRIVY COUNCIL, CANADA.

AT THE GOVERNMENT HOUSE AT OTTAWA.

Wednesday, the 30th day of January, 1918.

PRESENT:

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL.

His Excellency the Governor-General in Council, pursuant to the provisions of section 56 of the Railway Act, Chapter 37, Revised Statutes of Canada, 1906, having had under consideration the petitions from the Government of the Province of Manitoba, the Winnipeg Board of Trade (Shipping Section), the Western Retail Lumbermen's Association, of Winnipeg, and others, appealing from the Order of the Board of Railway Commissioners for Canada, dated the 26th day of December, 1917, providing for a general advance in freight and passenger rates; and, after hearing counsel for the petitioners, and others, is pleased to direct that the further hearing of the appeal be adjourned until Friday, the 1st day of March, 1918, at 11 o'clock a.m.; that those who are supporting the appeal shall file their case in the Privy Council Office, in printed form, and also serve it upon those who are opposing the appeal, on or before the 8th day of February, 1918; that those who are opposing the appeal shall file and serve their reply on or before the 18th day of February, 1918, and that those who are supporting the appeal shall be allowed to file and serve a rejoinder, all in printed form, on or before the 28th day of February, 1918, the hearing shall then be continued on the 1st day of March, 1918.

His Excellency is further pleased to declare it to be open to all interested parties, to file separate cases, if they desire to do so, or if they see fit, to join in the presentation of one case.

If they see fit, however, to file separate cases, it is more advisable that they should get into consultation with each other, in order that there may not be repetition. It is desirable, both in the interest of those who are supporting the appeal, and particularly of those who are to go over this case, that repetition be avoided.

His Excellency the Governor-General in Council is further pleased to order, and doth hereby order, that the operation of the rates, which, under the order appealed from would otherwise come into force on the first day of February, 1918, be postponed until the fifteenth day of March, 1918.

Whereof, the Board of Railway Commissioners for Canada, and all other persons whom it may concern, are to take notice, and govern themselves accordingly.

Certified copies hereof shall, forthwith, be transmitted to the Board of Railway Commissioners for Canada, to counsel for the petitioners, and other interested parties.

(Signed) F. K. BENNETS,
Assistant Clerk of the Privy Council.

CANADA
FOUNDRIES & FORGINGS
LIMITED



Our new Catalogue of Drop Forged Steel Products is ready for distribution.

Do you want one? Ask

The Billings & Spencer Plant
WELLAND -- ONTARIO



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P.S.—We love to receive enquiries.

British Columbia Notes

Some Recent Industrial Developments that Have Been Occurring in the Pacific Coast Province

Mr. W. H. White, of Boyen City, Mich., accompanied by Mr. C. F. Beyrel, a Chicago engineer, has visited the site of a new pulp and lumber mill at Beaver Cove, on the Johnston Straits. Capitalists with whom Mr. White is associated have control of a large tract of well-timbered land in the neighborhood, and it is proposed to erect a mill almost immediately which will be one of the largest in the Province when completed.

The Food Products Company of Vancouver are planning a considerable development of the fruit and canning industry at Keremeos. Arrangements have been made for the supply of tomatoes, corn and beans to give the required production to keep seventy-five additional people busy in the cannery, thus doubling the number of employees. This will be an interesting experiment inasmuch as it is the first attempt to grow corn for canning on a commercial scale in British Columbia.

The Grand Trunk Pacific is said to be arranging for the lease to a Victoria Syndicate of the drydock property and all the plant and equipment attaching thereto. The syndicate will be prepared to go ahead with the construction of steel ships at Prince Rupert if the arrangements are completed.

A draft agreement between Messrs. Will, Harris & Bard, of Portland, Ore., and the South Vancouver Council has just been approved which aims at the establishment of a cordage factory in South Vancouver, the Council's part being to submit a by-law to the ratepayers to grant freedom from taxes for ten years and to supply water at cost. It is said that $450,000 will be spent in the erection and equipping of a cordage factory and at least seventy-five workmen will be employed.

The Wallace Shipyards are continuing their good work and going aggressively after the steel shipbuilding business. Additional contracts for four steamers of 5,100 tons each have recently been received, thus insuring a big addition to the output for the coming year.

FIRE LOSSES IN 1917.

One Estimate Places Them Slightly Under the Figure for the Preceding Year.

According to estimates, compiled by the *Monetary Times*, the fire loss throughout Canada, during the month of December, was $5,144,100, as compared with the November loss of $959,049, and $3,271,496 during December, 1916. The figures for December, 1917, include an estimate of $2,000,000 for the losses at Halifax, actually caused by fire, and would appear to be not unreasonably high. This brings the total estimated fire losses, throughout Canada during the past year, to $20,086,085. The following figures represent the estimated total fire losses during the three preceding years:

1914	$24,321,012
1915	13,671,527
1916	20,487,509

Estimates, compiled by the Commission of Conservation, placed the Canadian fire loss, during 1917, at the higher figure of $23,251,000. The Commission points out that the Government pays about $2,000,000 a month, in separation allowances, to soldiers' wives and dependents, while the Canadian people burn up property to a similar value every month.

In 1917, the increase in the fire loss in the United States and Canada, over that of 1916, was greater than the entire property loss in 1878. Last year's aggregate loss was $267,273,140, having been exceeded but once in the last forty years, the only year of greater loss having been 1906, during which the San Francisco disaster occurred. The increase of loss, in 1917, over the preceding year, was nearly $36,000,000, while the total for 1878 was but $34,315,900.

SARDINE PLANT PROBABLE.

The Booth Fisheries Sardine Company, of Chicago, which operate successful sardine plants at St. Andrews, Eastport and Lubec, having expressed a desire to establish a sardine packing plant at St. John, to cost between $75,000 and $100,000, and to employ from 100 to 150 women, and from 50 to 60 men, under sanitary and well-paid labor conditions, the City Council, to whom the company applied for the placing of a valuation of $1,000 on the plant for five years for general taxation purposes, the fixing of the school tax at $200 per annum for the same period, and a preference at city weirs, agreed to exempt the plant from general taxes for five years, the school tax to be paid at the regular rate. The weir preference was refused.

DEVELOPMENTS AT SYDNEY MINES.

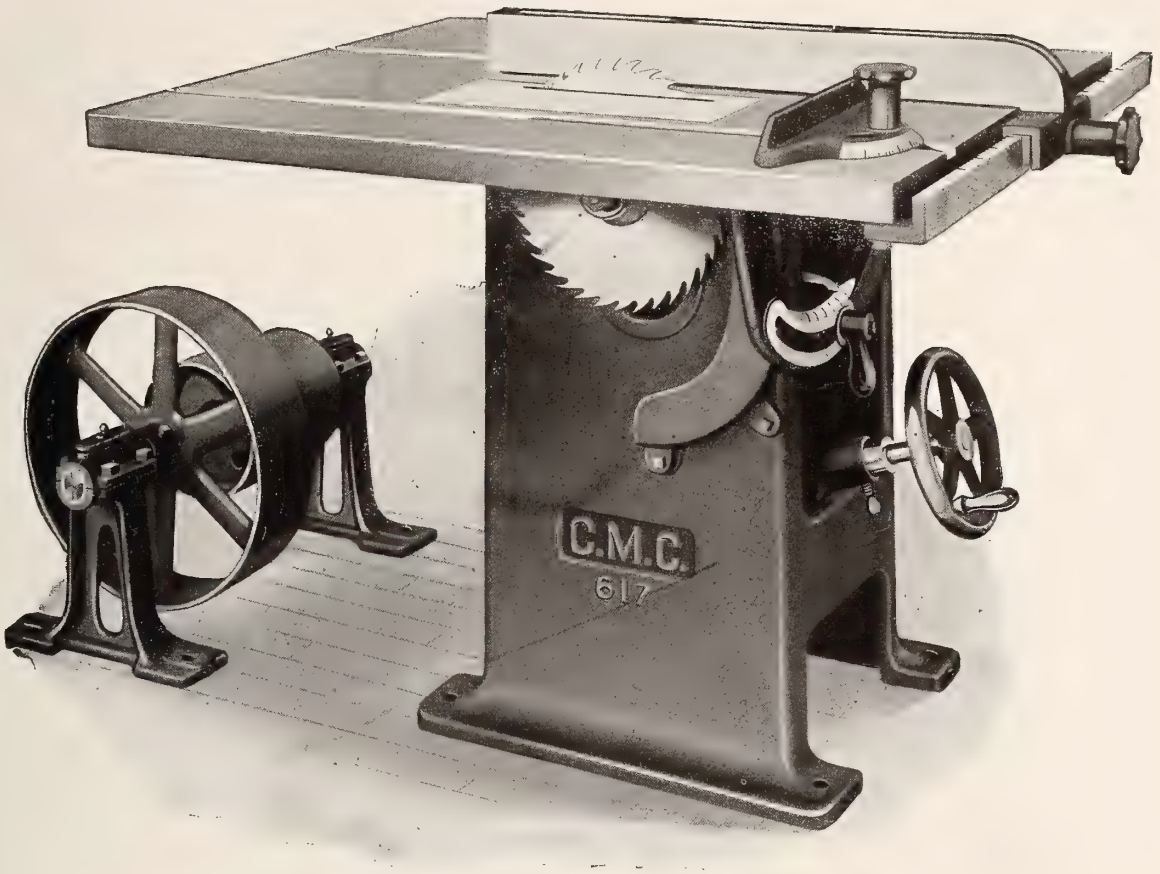
Nova Scotia Steel & Coal Co. are Extending Their Operations Both in Coal and Steel.

The Nova Scotia Steel and Coal Company are extending their operations at Sydney Mines, both in the production of steel and coal. They have just touched on the fringe of two square miles of submarine territory, acquired under lease from the Dominion Coal Company about four years ago. To reach this vast coal area, it was necessary to drive a new haulage through old and abandoned workings, and retimber the roadway, as the work progressed, over a distance of 10,000 feet. Double tracks will also be laid, so that when a loaded train is ascending, another train of empty boxes can return to the working face. These big operations will be in full swing, when the shipping season opens. Simultaneously, work is progressing on the construction of a new steel bankhead for the handling of the product, as taken from the mine. At the steel plant, a new 250-ton blast furnace has recently been completed. The first step in the installation of a series of waste heat boilers was also undertaken last year. The boiler, now working under this process, is supplied by the waste gas from one of the open-hearth stacks, and it has been demonstrated that there is 400 h.p. available, from this source, at each furnace. The coal output of the Sydney Mines collieries, in the past year, was about 585,000 tons, and the steel plant produced 86,300 tons of iron and 128,200 tons of steel. There was also a coke production of 106,150. There are 2,100 men on the colliery department payroll, and 1,400 employed at the steel plant.

Alfred C. Gilbert, of the A. C. Gilbert Co., New Haven, Conn., and Thomas E. Menzies, of Menzies & Co., Toronto, Canada, have obtained a charter for a company to be called the A. C. Gilbert-Menzies Co., Ltd., which will be located in Toronto. This company will manufacture many lines of toys in addition to handling electric fans and other specialties. Thomas E. Menzies is to be president and Alfred C. Gilbert vice-president of the new company.

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TORONTO OFFICE AND WAREROOMS - - - - BROCK AVENUE SUBWAY

Canada's Mineral Industry

Expansion is Essential, and Instead of Importing, Canada Should Export Mineral Products

Canada pays out more money for imported mineral products than she receives from her mines. The value of the mineral production for the calendar years 1913, 1914 and 1915 was $145,600,000, $128,865,000, and $137,100,000, respectively. The imports of products of the mine, and manufactures of mine products for the same years, were valued at $259,300,000, $181,676,000, and 146,324,000. As the imports also include manufactured, or partly manufactured, products, they are much more valuable than the minerals we produce. If, however, Canadian minerals were turned into manufactured products in Canada, the present trade balance in minerals would be reversed.

It is only fair, though, to point out, that Canada is under serious disadvantages, in the matter of manufacturing. The relatively small and scattered population makes distribution, from points of production to points of consumption, both difficult, and costly. Similarly, where, for example, coal is essential for reducing ore, and for manufacturing, the cost of transportation necessary to bring the two raw products together, bears heavily on manufacture. Copper, zinc and lead are produced, principally, in Western Canada, while the manufacturers and chief markets are in Eastern Canada. In spite of these handicaps, a comparison of the figures for imports, and those for production, shows the opportunity that exists for developing a home market, that will increase as the war goes on. Premier Lloyd George, in his recent address, stated that, "Economic conditions at the end of the war will be in the highest degree difficult. . . . There must follow a world shortage of raw materials, which will increase the longer the war lasts, and it is inevitable that those countries, which have control of raw materials, will desire to help themselves and their friends, first."

The mineral resources of Canada, if developed, could supply, not only our own needs, but also permit the exportation of a surplus to other parts of the British Empire. There is, in Canada, an urgent need for production, to pay for our war debt, and borrowings before the war, and, if we are to get the greatest value out of our mineral industry, it is necessary that our metals and minerals be refined, and made into manufactured, or partly manufactured, products, in Canada. The production of certain mineral products in Canada has been stimulated by the war, and new industries created. In the period of reconstruction, after the war, it will be necessary to safeguard and provide for the further extension of these industries.—*W. J. D.*

TRAINING FACILITIES INCREASED.

Preparations Under Way to Meet Demand for Vocational Training Among Veterans.

Additional machinery is being added by the Military Hospitals Commission to the equipment in the Calgary Institute of Technology and Art, for the purpose of affording more returned men the opportunity to take up electrical and mechanical engineering.

The constantly increasing number of men returning from the front, makes it imperative for the vocational training centres to be ready to receive them, and grant them at once the training necessary to fit them to return to civil life.

In British Columbia, the vocational training facilities at the Shaughnessy Convalescent Hospital, in Vancouver, are being increased by the addition of twelve extra class rooms, while at Fairmount the equipment is to be supplemented by the addition of a big machine shop and drafting room. Accommodation will also be made for a large shoe repairing department.

Provision for a centre of vocational re-education in Fredericton, N.B., is also being made, in the fine vocational building, now under construction there.

In carrying out its vocational re-education powers, the Military Hospitals Commission has provided as wide a variety of courses as possible, at all centres. The policy has been adopted, however, of developing centres of re-education, with special equipment at important points, as follows—Halifax, Montreal, Toronto, Guelph, Winnipeg, Calgary and Saskatoon.

Centres of re-education for agriculture are being developed at Guelph, Winnipeg, Saskatoon, and at Olds, Alta., where the Provincial Department of Agriculture placed one of its agricultural high schools at the disposal of the Commission.

NOT HIS JOB.

"I'm not supposed to do that," said he
When an extra task he chanced to see;
"That's not my job, and it's not my care,
So I'll pass it by and leave it there."
And the boss who gave him his weekly pay
Lost more than his wages on him that day.

"I'm not supposed to do that," he said,
"That duty belongs to Jim or Fred."
So a little task that was in his way
That he could have handled without delay
Was left unfinished; the way was paved
For a heavy loss that he could have saved.

And time went on and he kept his place,
But he never altered his easy pace,
And folks remarked on how well he knew
The line of task he was hired to do;
For never once was he known to turn
His hand to things not of his concern.

But there in his foolish rut he stayed,
And for all he did he was fairly paid,
But he never was worth a dollar more
Than he got for his toil when the week was o'er.

—*K. P. B.*

NEW YARMOUTH STEAMER.

Fine Vessel Placed on the Bay of Fundy, Run Between St. John and Yarmouth.

Through the enterprise of the Hugh Cann & Sons Company, of Yarmouth, N.S., supplemented by the efforts of the St. John Board of Trade, a new and commodious steamer has been placed on the route between St. John and Yarmouth, taking the place of the *John L. Cann.*

The name of the new boat is the *Keith Cann.* She is commanded by Captain A. L. McKinnon. The appointments of the *Keith Cann* are of the best description. In addition, to comfortable passenger accommodation, her freight space is double that of the old steamer. Her speed is also greater. She is equipped with an electrical plant for lighting purposes.

Many St. John people inspected the boat on her maiden trip, and were greatly pleased with her appearance and general equipment.

Dominion Rubber System Pension Fund

Details of Pension Plan adopted by Canadian Consolidated Rubber Co. Limited, for its employees.

1. NAME The name of the plan is Canadian Consolidated Rubber Co. Limited Pension Plan.

2. OBJECT After careful consideration of the subject and an examination of existing pension systems, the Company has adopted the following plan as the most liberal for employees who, by long and faithful service, have earned an honourable retirement.

3. DEFINITIONS a. In these regulations the word "Company" shall mean the Canadian Consolidated Rubber Co. Limited, or its successors.

b. "President" and "Board of Directors" shall mean the President and Board of Directors of the Company.

c. The word "Committee" shall mean the persons appointed by the Board of Directors to administer the Pension Plan in accordance with approved regulations.

d. The word "employees" shall mean those persons who receive a regular and stated compensation from the Company, other than a pension or a retainer.

e. The expression "term of employment" shall mean period of continuous employment in the service of the Company, or any company or companies subsidiary thereto, allied with, or predecessors of the Company, and shall include such employment whether commenced prior to the adoption of this plan or not.

f. The expression "continuous employment" shall mean service with the Company continuously without a break of any kind, except as due to leave of absence, sickness, injury, or necessary temporary lay-off on account of reduction of force or for any other reason, all such cases to be subject to the discretion of the Company; but when such absence exceeds six months in any twelve consecutive months it shall be deducted in computing the length of service. In any other case than such mentioned, if a person is re-employed after such a break in the continuity of this service, for the purposes of this pension plan he shall be considered as a new employee.

4. PENSION COMMITTEE a. There shall be a committee of not less than five nor more than seven, appointed by the Board of Directors to serve during its pleasure, which shall be called the Pension Committee. This Committee shall be charged with the administration of this plan.

b. The Committee shall have the specific powers elsewhere herein granted to it, or that may be granted to it from time to time by the Board of Directors. Exceptions to or deviations from the regulations so laid down shall in all cases be subject to the approval of the Executive Committee of the Board of Directors of the Company.

c. It shall determine conclusively for all parties all questions arising in the administration of this plan.

d. It shall adopt such by-laws and rules of procedure as it may find necessary, subject to the approval of the Board of Directors.

e. It shall be empowered to employ a secretary and such other assistants as may be required in the administration of the plan.

5. PENSION FUND The Company shall appropriate such sums of money from time to time as may be necessary in administering this plan, and no contributions will be required, or received from any employees of the Company.

6. ELIGIBILITY a. All employees of the Company engaged in any capacity whatsoever, and wherever located, are eligible to a pension as hereinafter stated.

b. All male employees who have reached the age of sixty-five years and whose term of employment has been twenty years or more, and all female employees who have reached the age of sixty and whose term of employment has been twenty years or more, may with the approval of the Pension Committee retire from active service, if they so desire and become eligible for pensions.

c. All male employees who have reached the age of sixty years and whose term of employment has been twenty years or more, and all female employees who have reached the age of fifty-five and whose term of employment has been twenty years or more, may at the discretion of the Pension Committee be retired from active service, and become eligible for pensions.

7. DISABILITY PENSIONS At the discretion of the Committee and with the approval of the Board of Directors, any employee who has become totally disabled as a result of sickness or injury, compensation for which may not otherwise have been provided, and whose term of employment has been fifteen years or more, may be retired from active service and granted a pension. If a pension is granted it shall be for such period as the Committee may determine, and if at any time during such period the employee recovers sufficiently to resume active service, the pension may be discontinued by action of the Committee. If the employee re-enters the service of the Company at the time such pension is discontinued he shall be eligible to a pension under these regulations, and the period of absence on disability pension shall be considered as a leave of absence and not a break in the continuity of the employee's service.

8. AMOUNT OF PENSIONS a. The annual amount of such pensions shall equal one per cent. of the average yearly wage for the ten years prior to retirement, multiplied by the number of years employed, but such pensions shall not be more than $5,000.00 per year, nor less than $240.00 per year.

For example, if an employee's average annual wage for ten years is $1,000.00 and he has been in the service for thirty years, he would receive 1% of $1,000.00 or $10.00 multiplied by thirty, or $300.00 per year or $25.00 per month.

b. In case of special difficulty in determining with practical accuracy the average yearly wage for the ten years prior to retirement, the Committee may at its discretion take some smaller consecutive number of years for the purpose of determining a fair average yearly wage.

9. PAYMENT Pensions shall be paid to the pensioner personally on the first of each month from the date of retirement until the death of the employee, unless suspended for such reasons as are described in this plan, and in case a male pensioned employee at the time of death is survived by a widow, or if either male or female pensioned employee is survived by minor children, the pensions shall be continued for three months after death, payable to the widow in the first instance and to the administrator or other legal representative of the minor children in the second case, to be applied as in the case of other property of the deceased, in the interest of the minor children.

10. GENERAL PROVISIONS a. Neither the action of the Board of Directors in establishing this Pension Plan or any action hereafter taken by the Board of Directors or the Pension Committee shall be construed as giving any officer or employee or agent of the Company the right of service, or any right to a pension; and the Company expressly reserves its right and privilege to discharge at any time any officer, employee or agent when the interests of the Company, in its judgment, may so require, without liability for any claim for a pension or other allowance other than salary or wages due and unpaid.

b. The Board of Directors may annul, alter, add to or amend in any way any and all of the provisions contained in this plan, or hereafter adopted by the Board of Directors in respect of this plan, and may at any time set aside any action taken by the Pension Committee.

c. The Company guarantees that, once a pension has accrued to a particular employee, it will continue such pension for the life of the particular employee and as specified with reference to widows and minor children; subject, however, to the provisions and conditions of the regulations laid down by the Board of Directors or the Pension Committee. It is understood that Section 10b given above shall not affect such guaranty.

d. Assignment of pensions under this plan will not be permitted or recognized.

e. Pensions may be suspended or terminated in the discretion of the Committee in cases of gross misconduct or of any conduct prejudicial to the interests of the Company.

f. Any retired employee may, by first obtaining the approval of the Committee, engage in any occupation or work which is not prejudicial to the interests of the Company. If any retired employee shall engage in any thing which in the judgment of the Committee is prejudicial to the interests of the Company, the payment of a pension to such retired employee may be suspended or discontinued.

g. Regular employment with this Company shall suspend the right of a retired employee to pension payment during the period he continues in such employment.

h. In case any pension shall be payable under the laws now in force, or hereafter enacted, of the Dominion of Canada or any Province thereof or any State or Country, to any employee of the Company under such laws, the excess only, if any, of the amount prescribed in this plan above the amount of such pension prescribed by law, shall be the pension payable under this plan.

11. TIME TO TAKE EFFECT This plan shall take effect January 1st, 1918.

Canadian Consolidated Rubber Co. Limited

Head Offices - - MONTREAL

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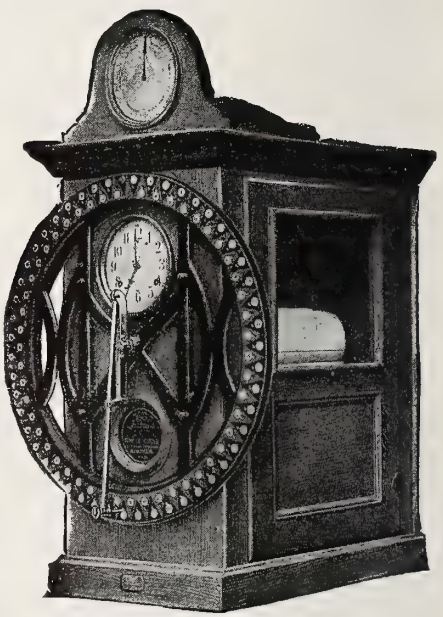
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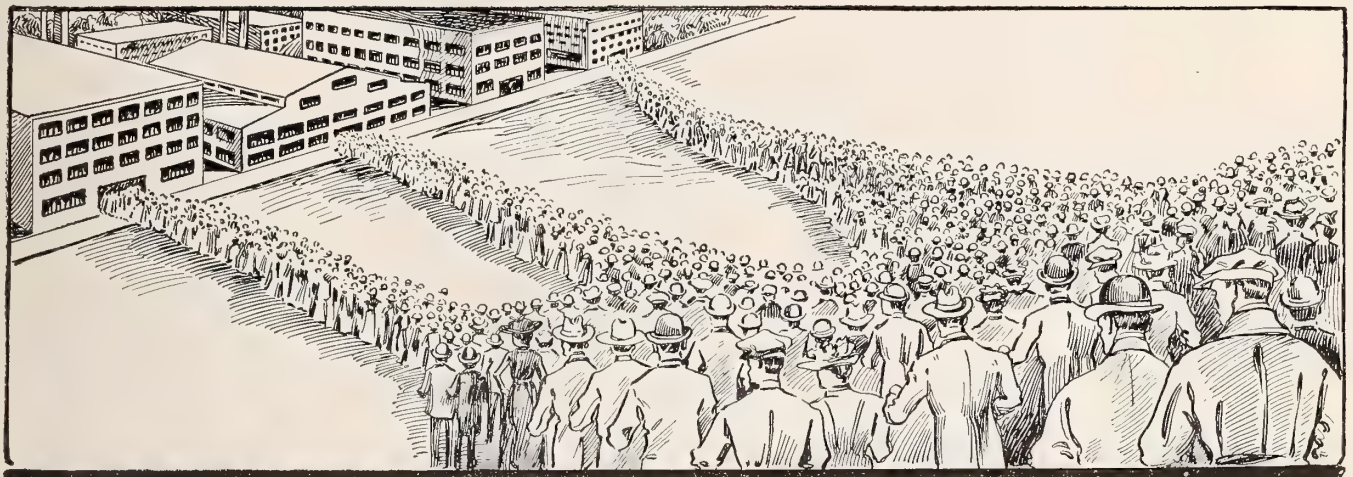
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But just think of this, for a moment. Suppose each factory employee in our fair Dominion lost one minute in the morning in going to and leaving work, and one minute in the afternoon, going to and leaving work, throughout the year, what would it mean? A total for the one million employees in Canada of 3,705 years' lost time, lost production.

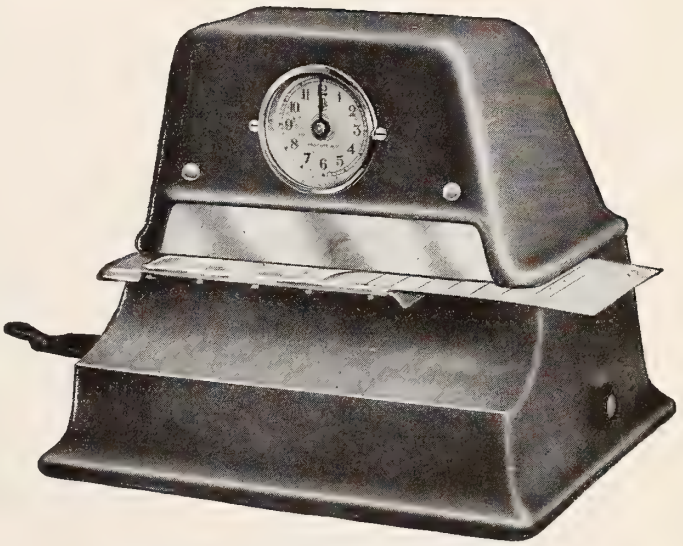
You may think these figures are all blue sky; they are not. Each employer of labor in this country will admit that four minutes' lost time, morning and afternoon, for each employee on arriving and departing, would be a conservative estimate. Properly accounted for it would mean lost wages to employees of $3,705,000. What the production loss would amount to cannot be computed.

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Catalogues and Booklets

LONDON BOARD OF TRADE REPORT.

It is a splendid record of progress that is contained in the booklet just issued by the Board of Trade of London, Ontario, giving a resume of the past two or three years' work of the Board. Several pages are taken up with synopsizing the main accomplishments, including trade expansion, patriotic, civic improvement, railway and public utilities, industrial and shipping. Under the heading of industrial, it is stated that the amount paid to employees in the new industries established in London during the past three years, is $114,400 per annum, a sum which will be doubled, if not trebled, before the spring of 1918.

"MEETING THE FRENCH-CANADIAN HALF-WAY."

In this booklet, C. E. A. Holmes, B.A., of the Canadian Advertising Agency, Limited, Montreal, endeavors to do something towards smoothing the way towards a better understanding between French and English-speaking Canadians. Mr. Holmes refers to the animosities which exist between the two races, and seeks to analyze them. He gives interesting facts and figures regarding the French-Canadians, both historical and present-day, and deals with French-Canadian mentality and outlook. Altogether his little booklet is readable and helpful in understanding a difficult situation.

WESTINGHOUSE FANS FOR 1918.

Concentration on those models whose serviceability and popularity have been amply tested has been the aim of the 1918 changes in the line of fans made by the Canadian Westinghouse Company. Where both 4 and 6-blade fans have been offered, the 6-blade fans have been eliminated, and some of the less popular ceiling fans have been withdrawn.

As a pioneer in the introduction of drawn steel frames, the Westinghouse Company soon secured a prominent place in the public's esteem for the lightness, attractive shape and finish of its fans. Tests show the power economy of these fans to be exceptionally high, while their operation is quiet. Since an oiling all around is required but once a year, maintenance is reduced to a minimum.

All portable fans are provided with a hinge joint to adapt them to mounting on either desk or wall. The oscillating mechanism can be adjusted for a "swing" of from 45 to 90 degrees, at the rate of 8 per minute, or can be locked out of service entirely. A tilt of 20 degrees from horizontal can also be had.

The Westinghouse 8-inch fan, at a popular price, has the drawn steel construction characteristic of Westinghouse fans. From it have been omitted, however, such refinements as speed control, highly-polished blades, and others, not necessary for durability. Current can be cut off by separating the attachment plug.

The remainder of the protable line includes both oscillating and non-oscillating fans of 10, 12 and 16-inch diameters. Ten-inch fans have zinc-plated, polished and lacquered blades; twelve and sixteen-inch models have polished and lacquered brass blades. Finish of all other parts is dull black. All models are packed in substantial boxes, and include attachment plug and 8 feet of cord.

Westinghouse gyrating fans are furnished for either floor or ceiling mounting. The fans themselves are 6-blade, 12-inch models, attached to a rotating body, which turns on a ball-bearing. One of the fan-motors is geared to a mechanical drive, operating on a central stationary pulley. Thus, the rate of revolution does not vary with the air-reaction. Breeze at any angle, from horizontal to 35 degrees below, can be secured. Finish is dull black throughout, save for the blades, which are polished brass. No guards are furnished.

Ceiling fans are furnished in 4-blade models, of 32 and 56 inches diameter. A number of electrolier attachments are furnished for these and for the gyrating fans.

EYE HAZARDS.

Eye Hazards in Industrial Occupations (octavo, 150 pp., illus.). By Gordon L. Berry, Field Secretary, National Committee for the Prevention of Blindness, with the co-operation of Lieut. Thomas P. Bradshaw, U. S. Army, formerly Technical Assistant to the Director of the American Museum of Safety. Published by the National Committee for the Prevention of Blindness, 130 East 22nd Street, New York. Price, 50 cents.

In this volume the author reviews the chief industrial hazards to eyesight in the industries of the United States. Case reports illustrate each section, the special dangers are described and recommendations made for such changes of working conditions, or installations of protective devices, as have been found suitable for protecting workers. The book is most completely illustrated.

The following section headings indicate the scope of the book: Statistics of Eye Accidents, Chipping Operations, Machine Operations, Abrasive Wheels, Sand-blasting, "Mushroomed" Tools, Rivetting, Radiations from Intense Light and Heat Sources, Ultra-violet Rays in Illuminants, Radiant Energy in Arc Welding and in Molten Metal, Metallurgic Operations, Glassblowers' Cataract, Infections, Gauge Glasses, Acids and Chemicals, Treatment of Acid Burns, Industrial Poisons, Removal of Dangerous Fumes, Vapors and Gases, Spray Process Hazards, Methyl Alcohol, Bottling Accidents, Mining and Quarrying, Agricultural Hazards, Goggles, Garment Trade Hazards, Industrial Lighting, the Safety Movement.

PUMPS FOR ANY SERVICE.

"Pumps for Any Service" is the title of an 84-page catalogue, just issued by Darling Brothers, Limited, engineers and steam specialists, 120 Prince Street, Montreal. It describes in detail, both in illustrations and text, the many and varied lines of pumps and compressors manufactured by this firm. It also contains several pages dealing with important information, for the benefit of intending purchasers of pumps. The book is well gotten up and is a credit to Darling Brothers, Limited.

MORE LINK-BELT LITERATURE.

Under the heading, "Another Modern Link-Belt Gravel and Sand Producing Plant," the Link-Belt Co. has issued an interesting little booklet, describing and illustrating the gravel washing and sand-drying plant of the Absecon Sand Co., Absecon, N.J. As usual, the little booklet is well illustrated, showing in a graphic way just how the equipment is installed and operated.

The versatility of the company is also evidenced by another booklet, showing how sanitary peeling tables are operated in the modern canning factory, by means of link-belt equipment. Again, the illustrations tell the story most eloquently.

HIGH QUALITY SERVICE AT MODERATE COST



PERSONAL SUPERVISION GIVEN TO ALL ENQUIRIES AND ORDERS

Legg Bros. Announce a New

CATALOGUE and ADVERTISING SERVICE

WE have recently added to our staff Mr. A. H. Maclauchlan, who has had over twelve years' experience in the advertising profession. The greater portion of that time has been devoted to catalogue work in all its detail. During the last three years he acted in the capacity of advertising manager with one of Canada's most progressive firms and had the management of the biggest catalogue issued in the Dominion. Mr. Maclauchlan has joined up with us, believing that his knowledge of this work, combined with our modern engraving equipment and printing associates, should make for the greatest good to all concerned. He offers you a host of selling plans, business-bringing ideas, advertising layouts, House Organs, Folders, Display Cards, Advertising Campaigns, etc. Let us have your enquiries now, on all matters pertaining to engravings, printing, cataloguing or general publicity. We offer you the most complete, the most punctual kind of service and our price quotations will assuredly interest you.

Estimates given on all kinds of advertising.

LEGG BROS.
Limited
10-12 WILLIAM ST.
Toronto - Ont.

Orders Solicited for Engravings Printing - Advertising.

Some Devices to Develop an Export Trade

Though the Following Article Discusses the Problem from the Standpoint of the United States Manufacturer, There is Sufficient Similarity between His Position and That of the Canadian Manufacturer to Make the Contribution of Value to the Latter

By CRITTENDEN MARRIOTT

(Reproduced from the Scientific American)

WE are very apt to talk of foreign trade as though it were something alike lacking in all volition, and free from the operation of the laws of supply and demand. This is, of course, a mistake. There is, to be sure, the historic episode of the Yankee skipper, who sold a shipload of warming-pans in Chile. But that was in the good old days, when a tramp Yankee trader was merely a legalized pirate; and, besides, this particular specimen of the genus had no intention of ever returning to Chile. So, in spite of his exploit, we may take it for granted that we cannot sell to a foreign merchant a commodity which he, and his customers, do not like, or which they cannot use, or of which they already have all they need.

Now this means, in the first place, that, when we have anything to sell, we must ordinarily expect to display at least ten per cent. as much intelligence in selecting a market for it as a German Gesellschaft would bring to bear upon a similar problem. Selling ability and knowledge of conditions go hand in hand in building up a successful export business. But, there is another significance, that points in quite an opposite direction, and this is, that, with sufficient knowledge of conditions, we may frequently dispense with selling ability altogether. In other words, certain classes of commodities, among which a prominent position is held by natural products, like wheat, cotton and lumber, normally sell themselves, for the world has absolute need of them.

But, such a state of affairs frequently leads to an unfortunate issue. There is obviously some effort involved in all trade; and, when the exporting producer fails to shoulder this, it automatically falls to the lot of the importing middleman, who promptly proceeds to appropriate for himself all the profits. The lumber trade furnishes an excellent case in point.

In normal times, it cost about $13 a thousand to produce lumber on the Pacific Coast, and the lumbermen were contented to get a profit of a dollar a thousand. In the last two or three years, they have got far less, and have been facing ruin. Yet, for a far longer time, the middlemen in Australia, who imported the lumber, were making fortunes. The total cost, delivered at final destination, everything paid, was seldom, or never, more than $30 a thousand. Yet, the

STELLITE

Ottawa, 8th January, 1918

Deloro Smelting & Refining Company, Limited
Toronto, Ontario

Dear Sirs,

In a recent issue of the Magazine of Management, "FACTORY," I read an article which coincides with my ideas, entitled "LARGER WAR-TIME OUTPUT."

Exchange of ideas and information with others means success; being impressed with this suggestion, may I take this opportunity as a large user of STELLITE, to make this statement,—

STELLITE, used and ground according to the makers' instructions, will produce 50% more efficiency than other cutting tools in use at our Plant. The use of STELLITE should result in legitimately increased profits and should, at the same time, increase production, thereby rendering a real service to the cause of democracy.

Yours truly,

THE NATIONAL MANUFACTURING COMPANY, LIMITED

(Sgd.) A. A. NORRIS, Superintendent

ANNOUNCEMENT

THE St. Catharines Plant and Business of the Jenckes Machine Co., Limited, have been acquired by Engineering & Machine Works of Canada, Limited, newly formed for the purpose.

No change is contemplated in the management, staff or shop organization and the same careful attention will be paid to all enquiries and orders.

The Head Office will be at St. Catharines, and Sales Offices will be maintained at 710 C. P. R. Building, Toronto, with Mr. C. G. Horton in charge and at 344 St. James Street, Montreal, with Mr. G. L. Burritt in charge.

Engineering & Machine Works of Canada, Limited
General Offices and Works:
ST. CATHARINES, ONT.

FORGINGS AND MACHINE WORK

With two powerful Steam Hammers and modern machinery we are able to turn out first-class work promptly and reasonable in price.

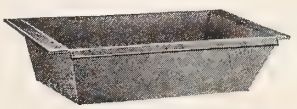
Tools for Munition Work

Heat-treating and carbonizing of steel a specialty.

THE JOHN WHITFIELD CO.
ENGINEERS AND MACHINISTS
Established 1874 - TORONTO



STEEL FACTORY EQUIPMENT



Steel Shop Boxes, Foundry Boxes, Shelf Boxes, Shop Barrels, Stools, Oily Waste Cans, Garbage Cans.

Gasoline Tanks and Pumps, Pressure Tanks, Storage Tanks, Smoke Stacks.

Anything in Black or Galvanized Sheet Metal up to $\frac{1}{8}$ thickness. Send blue print or rough drawing and get our prices.

Sheet Steel Sundries for manufacturers is one of our specialties.

Write us

The Steel Trough and Machine Co. Limited
TWEED, ONT., CANADA

lumber was retailed at $56 a thousand—a profit of more than 80 per cent.

When prices in Australia change, they change at the rate of $6 a thousand—neither more nor less—and the Pacific Coast producers could probably have added at least $4 a thousand to their export rate, without causing any retail advance at all in Australia. But, the Coast generally did not know this, and, in deference to the Sherman law, forbidding co-operation, the producers continued to carry on cut-throat price competition, for the foreign trade that impoverished them.

Co-operative Associations.

Recently, they have made efforts to remedy this state of affairs, by forming two co-operative associations, that may or may not, be in violation of the Sherman law. Lawyers say that they are not; and, at any rate, the lumbermen seem to think that they might as well go to jail for violating the law, as to the poorhouse, for observing it. The two associations control, respectively, 80 and 90 per cent. of all the redwood and fir that is to be exported. Neither organization does any domestic business. They sell the lumber abroad, on a commission basis, and distribute, as dividends, the profits that they have reclaimed from the middlemen.

This expedient is plainly a modification of the export-house idea. In dealing through established export houses, it must be remembered that their functions have radically changed of late years, almost all of them having evolved from commission merchants into export merchants, selling chiefly on their own account, and always working to enlarge their own sales. What commission business they still handle, they do either as an accommodation to old customers, or as a stop gap for some demand which they are not ready to supply on their own account. They cannot afford to drop a client's goods, in order to job similar goods on their own account. But, if a client wishes to leave them, they rarely take much trouble to prevent him. They have the machinery and the trade, and have learned the technique of his line; and, therefore, they can usually handle similar goods, on their own account, at a profit greater than their commission.

It is fair to add that they have been forced to become merchants by the delinquencies of American manufacturers, a very large proportion of whom, in the past, have been of the stormy-petrel type, but little better than the warming-pan hero—men who exported goods when the domestic market was bad, and who, all too often, postponed, or altogether failed, to fill orders—even orders that they had accepted—when a turn in the market made it more profitable to sell their goods at home. The export house which had taken the order, had then to fill it, or "queer" itself with its customers, and lose its reputation for reliability—a loss that would injure its business in all the manifold lines it carried. So it filled the order—often, at a heavy loss. A few such experiences were enough; the export house became a merchant, instead of a commission man, and retained the profits made when foreign business was good and domestic business bad, to offset the losses when the reverse was true. It follows, that export houses are not, ordinarily, seeking to obtain new domestic accounts.

Utility of Export Agents.

Nevertheless, there are times and ways in which they may be of great service to would-be exporters. Soon after the war broke out, two cough-drop manufacturers found themselves in difficulties. The winter market, for which

THE BIGGEST FACTOR

in the MANUFACTURING WORLD to-day is the INDUSTRIAL CHEMIST

INDUSTRIAL CONDITIONS of to-day have altered the whole scheme of production; manufacturers are constantly confronted with problems which they have never before met—problems of costs, of materials, of production, of exhausted supplies, of the utilization of waste, of substitutes.

THE INDUSTRIAL CHEMIST is the necessary and indispensable adjunct to the solution of these problems of production, to the growth and development of the industry, to the increasing of the factory efficiency and the improving of the product—all leading to a broader and increasing market.

THE LABORATORY is the institution to which the manufacturer must look for radical or fundamental advances in the use of materials, methods and processes of manufacture.

YOUR PROBLEMS have, in our hands, the attention of a staff of industrial chemists familiar with the practical and commercial features as well as the technical details of the work they encounter. Your problems are treated in a confidential manner and practical results are obtained without undue delay.

The Largest and Best Equipped Commercial Laboratory in Canada

MILTON HERSEY CO., LIMITED

INDUSTRIAL CHEMISTS, ENGINEERS AND INSPECTORS

MONTREAL WINNIPEG

JOHNS-MANVILLE
Asbestos
Resistant to heat, water, wear and weather

JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

Insulations Packings Steam Traps
Roofings and Building Materials
Electrical Products Household Specialties

THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.
Toronto Montreal Vancouver Winnipeg

When you think of Asbestos you think of Johns-Manville

THE
MONTREAL COTTONS
LIMITED

MANUFACTURERS OF

WHITE VICTORIA LAWNS

WHITE NAINSOOKS

and

DYED COTTONS

OF EVERY DESCRIPTION

MOTOR WORKS HAMILTON LIMITED HAMILTON CANADA GEARS

GEARS
Spur
Worm
Spiral
or Gear Cutting from your blanks.

Hamilton Motor Works, Limited
HAMILTON, CANADA

Penmans

Underwear, Hosiery and Sweaters
Laundry, Pulp and Papermakers' Felts, Blankets
Lumbermen's Socks, etc.

Factories at

PARIS, THOROLD, PORT DOVER, ALMONTE AND BRANTFORD, ONTARIO
ST. HYACINTHE AND COATICOOK, QUEBEC

Penmans LIMITED

PARIS : : : CANADA

TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
A. W. HOLMES, Toronto
ROBT. HUNGERFORD, Toronto
FRED KELLOND, Hamilton
S. J. MALLION, Stratford
MRS. A. BROWN-REDDICK, Toronto
H. J. TUTT, Toronto

Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent.
Phone Main 5800

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works.
D. M. MEDCALF, Chief Inspector of Steam Boilers.
W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways.
W. C. McGHIE, Chairman of Board.
W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849 **BRADSTREET'S**

Capital and Surplus - - $1,500,000

Offices Throughout the Civilized World

Executive Offices: Nos. 346 and 348 BROADWAY, N Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptons are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. CORRESPONDENCE INVITED.

Offices in Canada

Edmonton, Alta.	Hamilton, Ont.	London, Ont.
Halifax, N.S.	Ottawa, Ont.	Quebec, Que.
Montreal, Que.	Toronto, Ont.	Vancouver, B.C.

St. John, N.B. Winnipeg, Man. Calgary, Alta. Victoria, B.C. Sydney, N.S.

THOS. C. IRVING, Gen. Man. Western Canada, Toronto

they had stocked up, did not materialize. People stopped having colds, or, at least, they stopped buying cough-drops to cure them, and the firm found itself left with a huge unsalable stock on hand. In this emergency, it occurred to the junior partner that they might sell some drops abroad, through an export house. The senior partner derided him. The junior thought that very probably his senior was right. Nevertheless, he wrote to half a dozen of the bigger export houses, and got a letter from one of them, asking him to call. He did so, and made a contract which, if it did not net the partners a very large profit, did, at least, save them from what would have been a severe loss.

Dealing Indirectly.

After the agreement had been signed, the cough-drop maker asked the manager of the export house about it. "We thought our line would be too little for you to handle," he said. "We had an idea that you took only large accounts!" The manager was very frank. "Lots of manufacturers think so," he agreed; "but they're wrong. It isn't so much how big the account is as whether it meets our needs. We supply a lot of foreign firms with pretty much everything they import, and we want to keep their business to ourselves. We don't want them to get into the habit of buying from another export house, which might, eventually displace us in other lines. Each of these foreign stores, of course, sells hundreds of articles that it does not import, and, when a home firm, like yourself, offers us something that competes with one of these articles, we are apt to try it, no matter how little profit there is in it, just to keep our competitors from getting in with it, and perhaps, eventually, using it as a wedge to split our business."

Another way of selling abroad, without doing business abroad, consists in selling goods at home, by application to representatives of foreign firms, who have come to the United States, on wholly different errands. Details must vary infinitely; but, a particular example will explain the general principle:

The sales manager of a firm that produces machine tools, for making locomotives, thought he saw a field abroad, but could not convince his employers to spend any extra money as an entrance fee. So he determined to show them, by earning a profit, without expense. The problem, was, really, a hard one, as he could not go, or send men abroad, to urge the tools on foreign builders, and he had very little faith in catalogue sending. In short, he had no means that he considered effective to reach across the ocean for the business. So he had to evolve a plan that would bring the business to him.

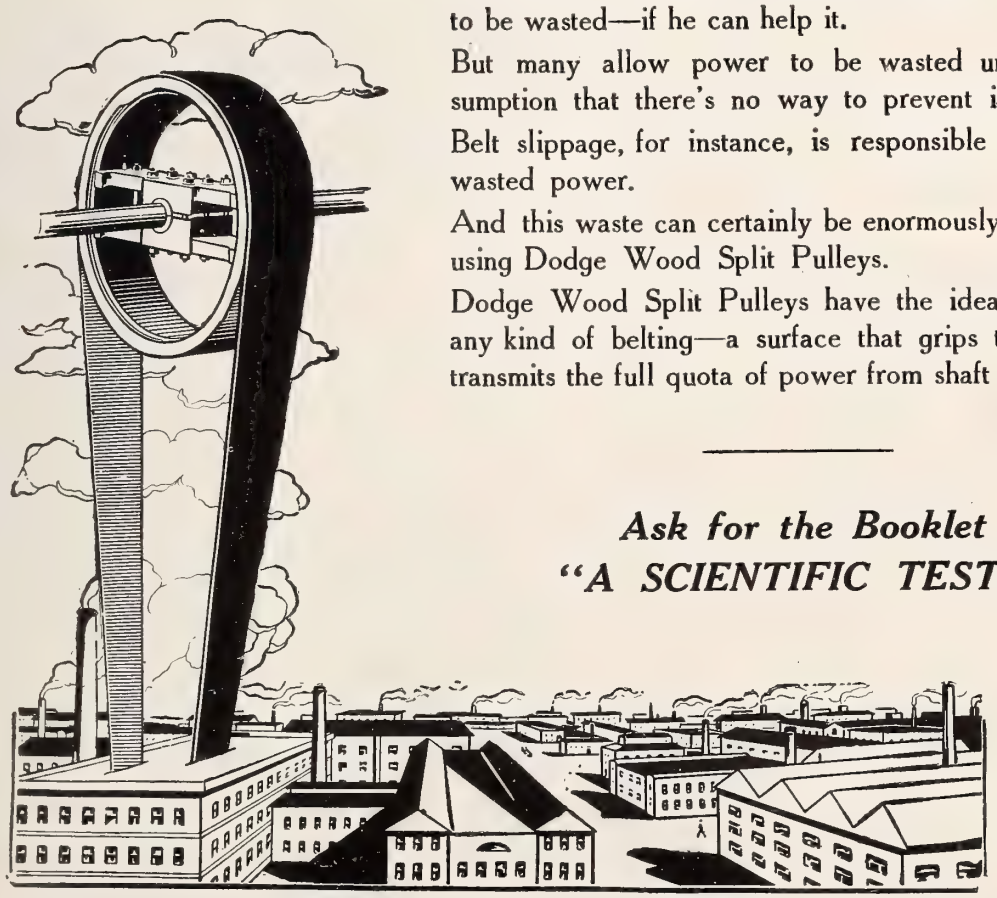
Another Experience.

He began to keep tab on purchases, by domestic railroads, of goods other than his own. He did not make trucks, for instance; but he watched truck purchases, by American railroads, well knowing that representatives of foreign houses would be sure to try to land any substantial contract that offered. He found out when these men would be on the ground, and he made a point of seeing them, and of inducing them to go with him to a railway shop, where his machines were in use, and could be seen in actual operation. Then, of course, he would furnish them with catalogues, and carefully prepared figures. Later, if need be, he would send follow-up letters. He also met prospective customers, at international conventions, held in the United States. In less than a year, he was able to go to the heads of his firm and show them an aggregate of foreign orders

DODGE
Wood Split Pulleys

You wouldn't waste money---

So why waste power that costs you money?



Of course no business man will deliberately allow power to be wasted—if he can help it.

But many allow power to be wasted under the assumption that there's no way to prevent it.

Belt slippage, for instance, is responsible for a lot of wasted power.

And this waste can certainly be enormously reduced by using Dodge Wood Split Pulleys.

Dodge Wood Split Pulleys have the ideal surface for any kind of belting—a surface that grips the belt and transmits the full quota of power from shaft to machine.

Ask for the Booklet
"A SCIENTIFIC TEST."

Dodge Manufacturing Co., Limited

Canada's Greatest Pulley Makers

TORONTO

Old Tyme Pure Maple Syrup

AND

Maple Butter

SOLD EVERYWHERE

Maples Limited

Manufacturers and Refiners

TORONTO CANADA

that made them open their eyes. To-day, the foreign trade adds substantially to the profits of the business.

We have remarked that, if a people do not want our goods, we cannot sell to them. But sometimes we can make them want what we have to offer. Thus, a Pacific Coast dealer in rice had a hard time in starting an export end to his business in South America, even after he had one going at high speed in the Orient. The basic difference, of course, was that rice is a staple product in the far East and an exotic in South America. It sold in the one place, despite competition, because everybody wanted it, and, even in the absence of competition, it did not sell in the other, because practically nobody wanted it. The taste for it had to be cultivated.

The firm began by sending, broadcast, catalogues, with cuts of samples and descriptions, in Spanish. Perhaps it sent them unwisely, for it got almost no replies. Then, it applied to United States consuls for help. The consuls did their best, but results were nil. Then, it tried banks, with equal non-success. Finally, it got down to rock basis, and took one country at a time, and established a showroom, conducted by men who knew the people. This time, it won, and built up a very profitable business.

Selling to Different Countries.

Another scheme of adaptation has been worked out, fully, by a house that exports large numbers of graphite crucibles, for furnaces, assaying, and kindred work. This firm began exporting, in a small way, to one foreign state, and found it hard sledding for two years. When, at last, it had begun to get satisfactory returns, it turned to another country, expecting to succeed there easily, by the aid of its experience in the first country.

But it was disappointed. It did, indeed, profit, but by no means so greatly, nor so rapidly, as it had expected; and, finally, it had to adopt an entirely different method. To-day, it sells to London, through jobbers, making its own prices; to Cuba, by agents, with whom it deals on a 10 per cent. basis; to South America, through export houses; and to other countries, through the salesmen and agents of cognate manufacturers, on a sliding commission scale. Every one of these methods has been adopted, after experimentation in other lines. The firm could never have succeeded as it has, if it had been unwilling to learn and to change; if it had insisted upon clinging to old methods, because they had succeeded elsewhere.

American manufacturers have often been abused for their failure to study the demands of foreign markets in regard to packing, and for failing to adopt the methods desired by their foreign customers. This abuse has really been a good deal overdone, and there is good reason to believe



The Canadian Salt Without a Fault

If you wish to impress on a customer the fact that some one article in your store is pure, you can't make a stronger comparison than to say, "It is as pure as Windsor Salt."

Windsor Salt has probably been used in her home for years.

Windsor Table Salt

Made in Canada

THE CANADIAN SALT CO. LIMITED

RIDOUT & MAYBEE

Solicitors of Patents

Counsel, Solicitors and Experts in

PATENT SUITS

Agencies in the leading countries of the World.

EDWARD MAYBEE, Mech. Eng. J. F. EDGAR, Counsel.

59 YONGE STREET, TORONTO

CANADIAN COLLAPSIBLE TUBE CO., Limited

MANUFACTURERS OF

"Premier" Pure Tin, Plain and Decorated Collapsible Tubes

381 ADELAIDE ST. WEST - - - TORONTO



Metal-Cutting Shear Blades

GALT KNIFE CO.
Limited
GALT ONT.

Chemical Fire Engines

For Factory–Village–City. Capacities 20, 40, 50, 70 Gal.

OUR "JUNIOR" 40 GAL. ENGINE WITH MANY IMPROVEMENTS OVER THE ORDINARY TYPE, SELLS AT $150.00

The R. S. BICKLE COMPANY

WINNIPEG MONTREAL QUEBEC ADDRESS ENQUIRIES TO HEAD OFFICE, WOODSTOCK

EXPORTERS OF
Reed Organs, Piano Stools,
Music Cabinets.
Catalogue B.

The Goderich Organ Co. Limited
GODERICH, CANADA

Closet Seats,
Flush Tanks,
Medicine Cabinets,
Everything for the Bathroom.
Write for Catalogue C and Price List.

MADE-IN-CANADA

Toronto, Ontario

Mr. Manufacturer:—

Are you sincere in your desire to boost and make greater the British Empire by the buying of Canadian made goods? If so, look over the following list of high-grade oils, greases, compounds and paints manufactured in our oil refinery at Petrolia and our paint works at Toronto, Ontario. A postal card from you will bring you full information regarding the goods in which you are interested.

CYLINDER OIL
ENGINE OIL
MACHINE OIL
DYNAMO OIL
TANNER'S OIL
BLACK LEATHER OIL
PARAFFINE WAX
MINERAL SOAP STOCK
BENZINE

CANADIAN OIL COMPANIES LIMITED
Quality First
NATIONAL BRANDS

WHITE LEAD
READY MIXED PAINT
COLORS IN OIL
VARNISHES
BLACK JAPANS
STEEL BRIDGE PAINTS
ROOFING PAINTS
CUP GREASE
LINSEED OIL SOAP

Power and Labor Cost Less
—IN—
PETERBOROUGH
ONTARIO

ARE you paying too much for electricity? Peterborough owns its Hydro-Electric System and sells at cost.

Is your power unreliable? Peterborough has emergency reserve lines.

Is Labor scarce, costly and unsettled? Our Manufacturers have been remarkably free from labor troubles, and have not had trouble in procuring labor of all classes. Peterborough is a City of home-owners, where living expense is low, Wages according.

Are freights too big an item with you? Peterborough offers

EXCELLENT TRANSPORTATION

The City is situated on the main highways of the C.P.R. and G.T.R., and connected by canals with Waterways. It is the centre of Canada's population, between Montreal and Toronto, thus enabling you to reduce mileage to the minimum for national distribution.



MANUFACTURERS INVITED

There are over sixty factories in Peterborough to-day, the largest employing 2,000 hands. The City offers every encouragement to Manufacturers and is holding a number of choice sites alongside railways. For further particulars, write, telegraph or telephone to

The City Clerk, Peterborough
Ontario Canada



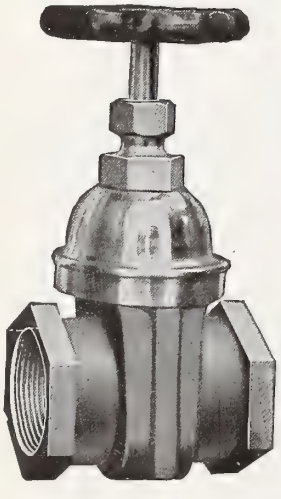
MUELLER

GLOBE
AND
ANGLE
VALVES

Globe and Angle Valves, with an even thickness of metal throughout; valves that can be repacked under pressure both open and closed. The pipe threads are full length. The valves contain full sized water ways, and are cast from steam metal of our own special formula.

MUELLER Globe and Angle Valves are compact and embody all the most practical and desirable features. These are positively the highest grade valves on the market to-day.

H. Mueller Mfg. Co. Ltd.
SARNIA, ONT., CANADA



HERE IS A

Brass Gate Valve

You will find it always made from HighGradeSteam Metal and beautifully finished.

They are not made of one quality this year and another next. Always reliable and worth the price you pay.

The Kerr Engine Co., Limited
VALVE SPECIALISTS
WALKERVILLE - ONTARIO

that a lot of it is merely parrot-like repetition of stories started by foreign business rivals, who want to keep the trade for their own nation, and shut out the United States. Although it is, of course, advisable to pack goods as is customary in the country to which they are to be sent, it is not really necessary to do so in any very great detail. The essential thing in shipping goods is to know whether they are to go to a port where the ship can lie alongside a pier, and discharge cargo readily, or, whether they are to go to a place where cargo must be lightered ashore. It is very obvious, that goods that are to be loaded into lighters, perhaps in rough water, must be packed differently from those that can be swung ashore by a big stationary crane. A second requisite—about as important, in South America, at least—is that the goods be marked with their approximate dimensions and weights in the metric system.

An American manufacturer, who has a terrible time converting liters into gallons, kilograms into pounds, and centimeters into inches, should understand how grateful the Latin American will be if he finds the reverse calculation made for him. If these requisites are met, common-sense methods will serve for most of the others, though, of course, close observance of details will do no harm. The fact is, that, in dealing with South America, it is not so necessary to follow South American customs as might be supposed, for only about ten per cent. of the trade goes to real South Americans. Most native Latin Americans are politicians or land-owners; nearly all the important business is done by Europeans—especially by Germans and English—or is carried on by native houses that employ Europeans.

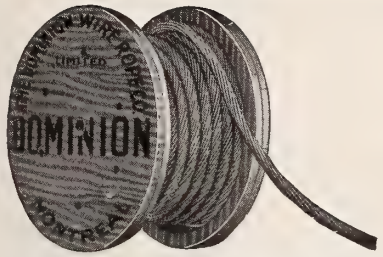
Packing Methods.

That our packing methods are not really unsatisfactory to foreigners, when made with reasonable discrimination, is evident from our shipments of locomotives, for instance. Since the war began, a single American company has shipped more than 400 locomotives to Siberia. They were taken apart, packed for shipment by our own home methods, and sent, via Magellan or the Panama Canal, to Vladivostok, where they were put together, and sent, on to destination, under their own steam. Less than one-tenth of one per cent. of the order was broken or lost in transit.

Similar results were obtained in South America, specifically in Colombia. Bogota, the chief city, is a good customer for railway material, despite the fact that it is cut off from rail communication with the coast. Its railroads are all short lines, running among Andean valleys and peaks. The pioneer American firm to invade the country built its locomotives complete in the United States, then took them down, numbered the pieces, and packed them in boxes. When they arrived at the coast city of Medellin, the pistons, cylinders, rods and other large parts, were wrapped in burlap, and placed on mule back, for conveyance to Bogota, where they were fitted together again. The venture was so successful that a very profitable and, under the circumstances, a surprisingly large trade was developed.

POWER-DRIVEN AIR COMPRESSORS.

The Canadian Ingersoll-Rand Co., Limited, Montreal, has recently issued Bulletin K-301-A, describing two-stage, power-driven air compressors, of the duplex type, "PLB-2." This is a 16-pp., 6 x 9 pamphlet, outlining notable features of construction, such as the "Circo" leaf valves, Haight 100% belt wheel joint, bath lubrication system, dustproof frames and casings, etc., as well as the marked compactness of the design, yet easy accessibility of all parts.



CANADIAN WIRE ROPE

MANUFACTURED BY

The DOMINION WIRE ROPE COMPANY, Limited

Branch: Mail Bldg., TORONTO. Head Office: MONTREAL.

Domeko Babbitt

For all purposes where a really durable babbitt metal is required use Domeko. You will find it completely satisfactory, even when applied where other makes of babbitt have been found inadequate. It is, in fact, the "last word" in babbitt metal quality.



MILL SUPPLY JOBBERS!

Are you carrying our range? If not, your line is minus goods that will get repeat orders on their quality against all comers. Drop us a line for samples and jobbers' discounts.

DOMEKO DMC

Dominion Metal Company, Limited

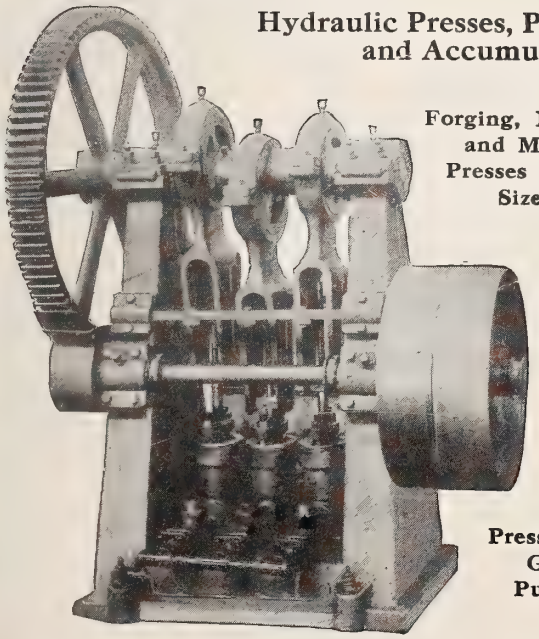
FOSS & HILL MACHINERY COMPANY
365 St. James St., Montreal, Que., Selling Agents for Montreal

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PRESSES

Made in Canada

Hydraulic Presses, Pumps and Accumulators



Forging, Nosing and Marking Presses for all Size Shells

Presses for General Purposes

WILLIAM R. PERRIN, Limited

Toronto, Canada

DOON TWINES

LIMITED

KITCHENER, ONT.

Manufacturing a Full Line of

Flax, Hemp and Jute Twines

We Specialize in

Mattress, Tufting, Broom, Sewing, Stitching, Warehouse and Bundling Twines; also Ropes, Plow Lines and Clothes Lines

Having the raw material on hand to spin the above we can guarantee delivery.

Write for Samples and Prices

MILLS: DOON and KITCHENER

Re-education of Disabled Soldiers at Guelph

Equipment is Unsurpassed, Factories Operating on a Sound Commercial Basis, Having Been Taken Over from the Ontario Government, and Soldiers Will Study Occupations Under Practical Conditions

THE facilities at Guelph for re-education of disabled soldiers, in a great variety of useful occupations, are not surpassed at any place in Canada. Initiating a work of vast possibilities for good, Lieut. H. D. Robertson, the vocational officer of the Military Hospitals Commission at Guelph, is proceeding slowly and carefully, in order that the unexampled facilities for industrial training, afforded by the establishment taken over from the Ontario Government, by the Commission, at that point, may serve its maximum usefulness.

The Guelph Military Convalescent Hospital, which has a capacity for nearly eight hundred men, is yet far from full. Vocational training has been begun, however, for the convalescent patients already installed. Classes in several subjects have been opened and, in addition, three or four trades are being taught. These afford the desired amount of occupation for the convalescents assigned to that hospital for treatment.

Opportunities for All.

It is contemplated that the Military Hospitals Commission industries at Guelph shall not be regarded as exclusively the property of the one territorial unit, in which it happens to be located, but, that men from all parts of the country, whose re-education courses can best be given with the facilities available there, shall be brought in for the purpose.

Factories operating on a sound commercial basis have been taken over from the Ontario Government, and there are, besides these, a nursery, dairy, farm, orchard and abattoir. All of these were being conducted during the regime of the Ontario Government on economic lines, and the same management has been continued, so that when they are used for re-educational purposes, the returned soldiers will study the occupations under practical and realistic conditions. The technical school aspect does not exist.

Cabinet Making.

In the factory where wooden products are made, the scope of opportunity may be judged from the fact that about a score of the most up-to-date electrically-operated machines, with safety devices, etc., are in operation, in the manufacture of everything, from plain doors and chairs, to therapeutic apparatus of a specialized type, devised within the past year, by scientific experts, engaged by the Military Hospitals Commission, for that purpose.

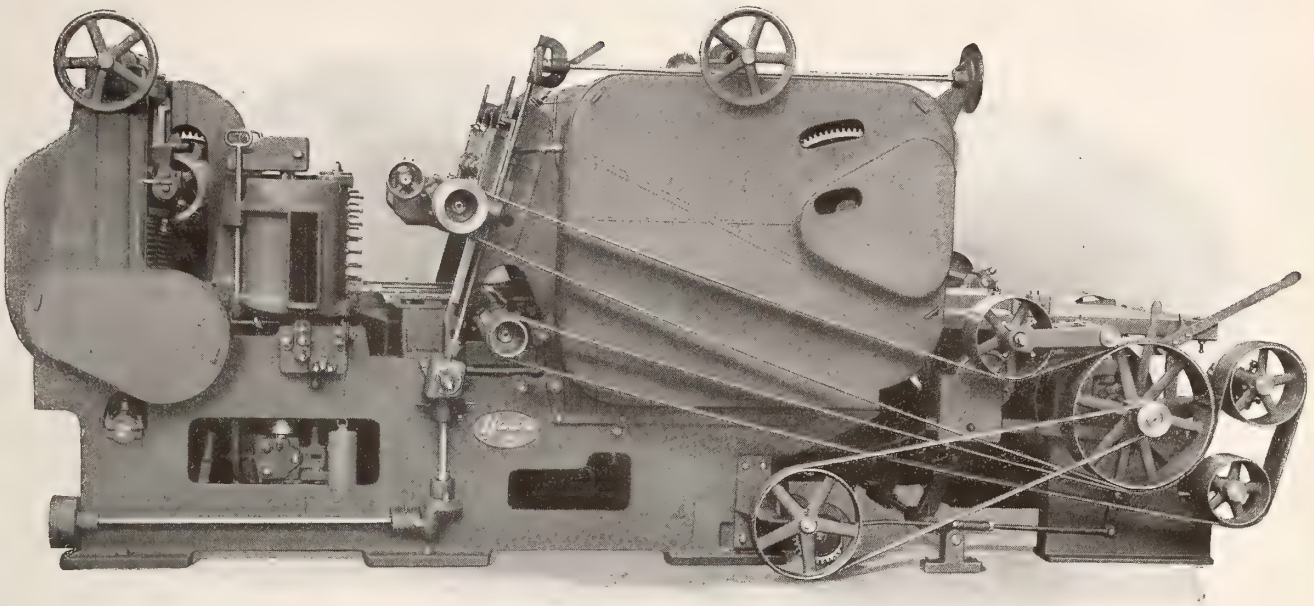
In the metal products factory, similarly up-to-date machinery is turning out iron beds, bed springs, racks, some of the equipment for hospital operating-rooms, all of which is

North American Magnesite Company
Limited
36 Board of Trade Building, MONTREAL

WE have acquired a Plant for CLINKERING MAGNESITE with an output of 150 tons per day. This Magnesite is equal in quality to any on the market, and has given very satisfactory results in Electric Furnaces.

¶ We would be pleased to furnish samples on application, and would refer you to Mills and Electric Furnaces who have used it.

There's a Goodly Profit In Big Dimension



Especially if the Run is Made On a Yates No. 16 Planer and Sizer

"The Invariable Choice of the Man Who Knows."

It will size and plane timbers up to 30 x 16 straight from the head rig. The finish will be so good that you can fill those big timber orders with a keen sense of pride in your product.

Base is cast-in-one-piece and every part is constructed over-strength. All important adjustments are at the operator's finger tips.

When the "big stuff" runs out, the No. 16 will surface lumber as small as ½ x 2¼. A shiplap attachment is supplied on special order.

Right now the demand for big dimension is great. You have probably heard the call from shipyards, military camps, and other large construction projects of the day. The Yates No. 16 is the best answer. It will whip up your production, better your grades, and boost your profits.

Send for Circular No. 16 right away

P. B. Yates Machine Co. Ltd.

HAMILTON, ONT. CANADA

U. S. Plant: Beloit, Wis.

completely manufactured, enamelled and packed for shipping, on the premises. An extensive machine repair shop, smithy, oxy-acetylene welding and cutting torch, are also to be found in this building.

In the textile factory, everything, from blankets, to garments, are processed, from the raw wool and cotton, to the finished garment.

Supplying heat, light, and power to an institution, in a scattered group of buildings, is, in itself, a big industry, and the men in charge are qualified experts.

In the greenhouse, the culture of all kinds of vegetables, flowers and foliage, is carried on, with every desirable facility available.

Holstein Herd.

The herd of over seventy head of splendid Holstein cattle are housed in a barn, which includes every modern feature, approved by dairy experts. Butter and cheese are manufactured on the premises, by thoroughly sanitary and economic processes.

The horse barn is a similar model of perfection, and contains a ventilating feature of recent design.

At the abattoir, headcheese, lard and sausages are manufactured, while slaughtering, dressing and curing are carried on as a matter of course. The live stock is delivered at the door, by railway, from the Ontario Government grazing grounds, and other points.

Ice-cutting for the institution is carried on in the river, adjacent to the abattoir, and other features of the establishment are the necessary laundry, kitchen and bakery, equipped and conducted on scientific commercial lines.

The above summary does not exhaust the industrial features of the plant, but it should be added that in the business office, from which all these industries are managed, has been adopted the most thorough system of cost accounting and record-keeping possible. The Ontario Agricultural College, which is second to none in the Dominion, in respect of the number of subjects covered, and the equipment for training in all of them, stands on adjacent ground. For the purpose of the Military Hospitals Commission, the directorate of the college has promised full co-operation.

The task which Lieut. Robertson faces, at the present time, is the adapting of this wonderful equipment to the purpose mentioned, and he is proceeding with great deliberation in his work of organization. As the re-education cases are assigned to Guelph for courses, he will fit them in to the factories, on a civilian basis. They will receive the vocational allowances afforded to all discharged soldiers receiving courses of re-education, and will be required to punch the clock, to supply a record of their hours of work. Instead of being awarded C.B., and other army punishments, for failure to conform to regulations, the usual factory method of deducting pay for unexcused absence will be followed. The soldiers will not wear uniforms in the factory, but will don the usual workingman's overalls. The ordinary system of apprenticeship, however, will not be followed, as more intensive methods of instruction will be adopted, so that the length of time during which the returned soldier needs to remain a ward of the Government, will be cut as short as possible. Some branches of the work can, undoubtedly, be learned in three months, while others will require five or six. There may be cases, too, in which men, with fairly serious injuries, will require even longer than that to adapt their limited physical abilities to the movements required in the operation of the machinery with which they will be made familiar.

"Put it on Wheels"



Style No. 200.

How are "You" meeting the problem of keeping up production against the shortage of man-power?

Here is one way.

By routing your product in the course of manufacture, on specially designed Trucks—Trucks designed by you for your particular need.

We will be glad to tell you what such Trucks will cost and supply you with one of our catalogs.

Remember our business is the manufacture of Trucks for Factory and Warehouse use.

THE W. S. MAHAFFY CO.

MANUFACTURERS

10-16 PLYMOUTH AVE., TORONTO, ONT. (After June 1st, 1918—NO. 2 TRAFALGAR AVE.)



To Specifications--

Screw Machine Work

CONSTANT attention to details of customers' requirements means that NAMCO special screw machine products will be "true to specifications."

Sizes up to $2^1/_4$ inches diameter---$10^1/_2$ inches long.

Prompt deliveries made from stock of S.A.E. Screws and Nuts, also V and U.S. Cap and Set Screws.

Quotations on your samples or from blueprints.

THE NATIONAL ACME COMPANY.
DE COURCELLES & G.T.R.R. MONTREAL CANADA

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

IMPORT TRADE ENQUIRIES.

37. **Skate Runner Section.**—We have an offer from an Ohio manufacturer who has stocks of steel skate runner section ready for immediate delivery. If any Canadian manufacturer of skates is interested, we shall be glad to put them in touch with the manufacturer.

"Canadian"

20" Power Drill

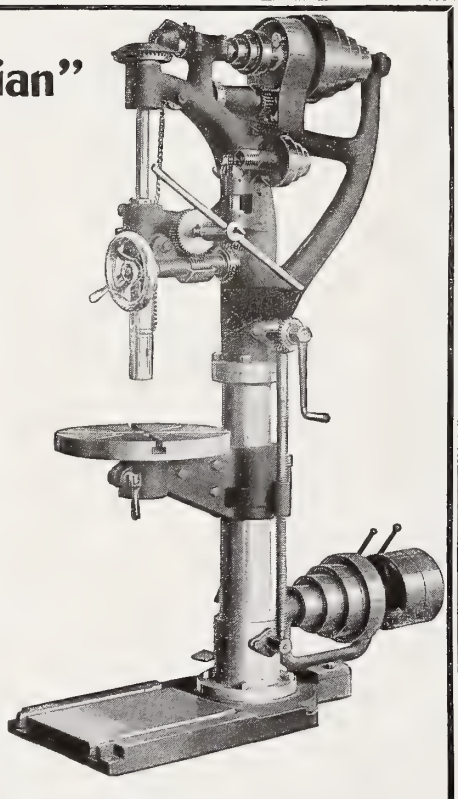
Eight speeds—three power feeds—hand and lever feeds.

Can be changed quickly for plain drive to back geared drive.

Machine cut gears—graduated spindle sleeve—automatic trip—lathe turned swiveled table, accurately centered.

Drills up to 1½" to center of 20" circle.

Write Dept. 21 for complete data.



Canadian Blower & Forge Co.

Kitchener, Ont.

38. **Wattle Bark.**—A broker in Johannesburg claims to be in a position to cater to the requirements of Canadian tanners in this material.

EXPORT TRADE ENQUIRIES.

39. **Agency.**—A mercantile broker in Johannesburg desires to get into direct communication with a number of Canadian manufacturers with a view to representing them in South Africa or the territory around Johannesburg. The lines that he is especially interested in are all kinds of mining materials, flour and other supplies used in mining camps. He supplies us with some details as to shipping, banking and payments which we shall be glad to disclose to enquirers who are interested.

40. **West Indies.**—An export house in New York are desirous of negotiating with manufacturers of wheat flour, condensed milk, and other commodities, which they can dispose of to their clients in the British West Indies. They are taking a special interest in this particular field for the export trade, and state that they are sure they will be able to justify the hopes they entertain for an increased volume of business.

41. **Electric Blowers, Blacksmith's Drilling Machines, etc.**—Merchants in Australia desire connections with firms dealing in electric blowers, blacksmith's drilling machines, etc.

42. **Australia.**—A firm of manufacturers' representatives, who import enamel and aluminum ware, malleable castings, padlocks, cabinet locks, refrigerator fittings, hay forks, hoes, etc., cutlery, carpenters' tools, axe handles, mattocks, wire goods (kitchen), lawn mowers, picks, thermometers, ice cream freezers, horticultural sundries, shovels, desire additional foreign connections.

43. **Machinery and Engineering Requisites.**—A firm of Engineers and general machinery merchants are interested in the import of all classes of machinery and engineering requisites. They cover the whole of Australasia regularly with their travellers and are in a position to represent manufacturers in the most efficient manner.

44. **Tasmania.**—A firm in Hobart, who are importers of stock and station requisites, farm implements, machinery, oil and steam engines, wire fencing, jute goods, fertilizers, hardware, etc., would like to hear from manufacturers of the above articles. They are also estate agents, auctioneers, live stock salesmen, wool, grain, skins, hides, wattle bark and fruit brokers.

Why Use Leaky Wooden Barrels For Your Products?

Write for Prices on Steel

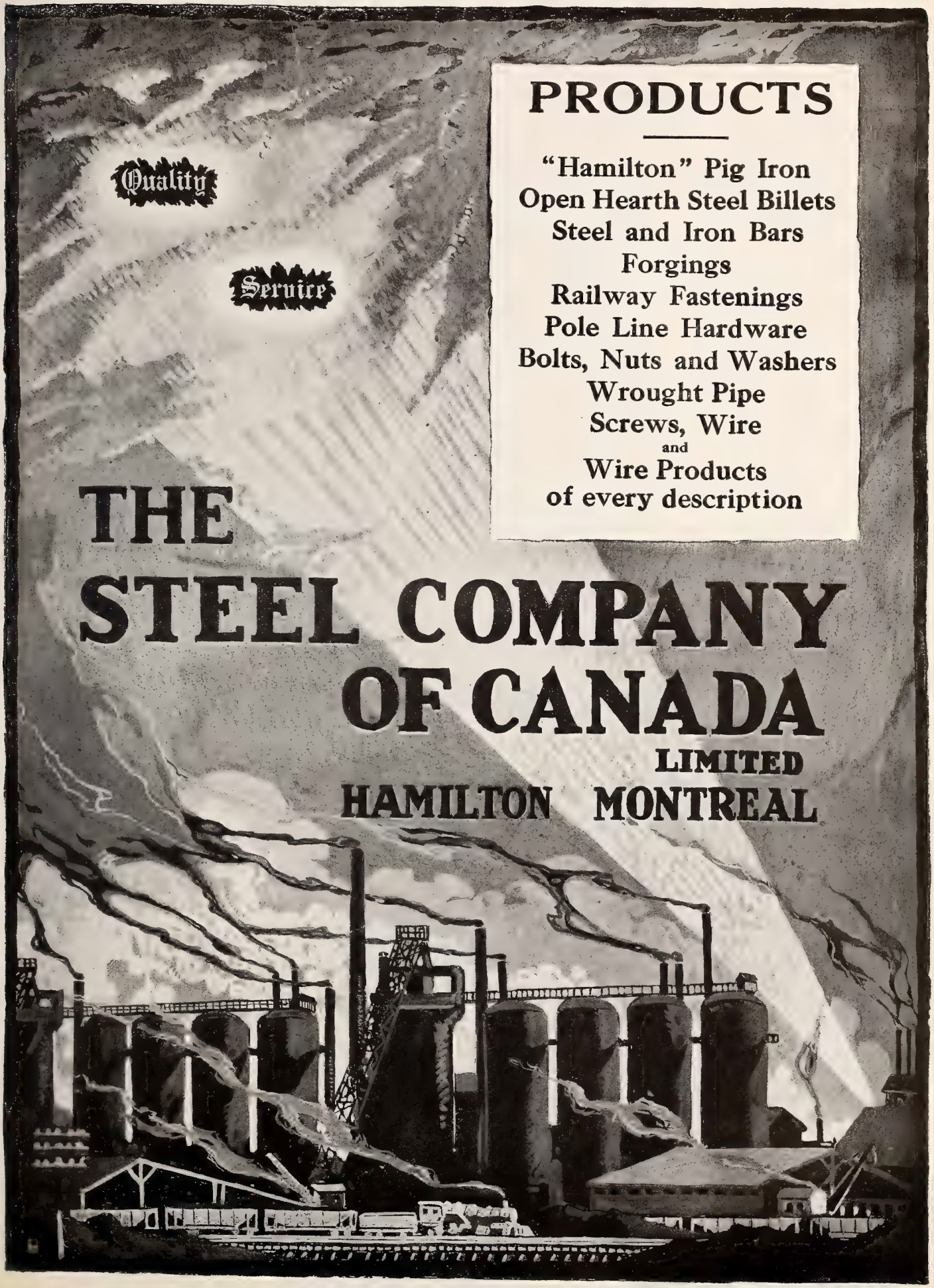
KEGS, HALF BARRELS
BARRELS, DRUMS

MADE-IN-CANADA

The Smart-Turner Machine Co., LIMITED

Hamilton, - Canada




Quality
Service
PRODUCTS
"Hamilton" Pig Iron
Open Hearth Steel Billets
Steel and Iron Bars
Forgings
Railway Fastenings
Pole Line Hardware
Bolts, Nuts and Washers
Wrought Pipe
Screws, Wire
and
Wire Products
of every description
THE
STEEL COMPANY
OF CANADA
LIMITED
HAMILTON MONTREAL

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE.

45. **Wheelbarrows.**—A Bristol firm desires to import wheelbarrows for navvy and general purposes.

46. **Washers and Churns.**—Canadian manufacturers of washers and churns are requested to communicate with a firm in Bristol.

47. **Hay and Manure Forks.**—Canadian exporters of hay and manure forks are asked to communicate with a Bristol firm.

48. **Steel Plate.**—A London, England, company is desirous of obtaining steel plates from Canada according to the following specifications: 144 square feet (about) of steel stokehold plate, 5/16 inch thick over the checkers, standard sized plate, say 6 feet long by 3 feet wide; 3½ tons ⅛ inch mild steel plate; 1½ tons 3/16 inch mild steel plate. The company states that it is inclined to purchase from Canada supplies which in the past have been obtained elsewhere.

49. **Machinery, Labor-saving Devices, Works and Domestic Appliances; Apparatus, such as Railway Signals, Switches, etc., Car Movers, Electric Appliances, Balers, Hardware.**—A Glasgow firm of importers is anxious to communicate with Canadian manufacturers of the above articles. Writing under date of December 29, 1917, the managing director says: "I have the pleasure to send you inclosed a list of some of the lines which it occurs to me we might be able to handle to advantage on this side, provided suitable arrangements and terms were practicable. My idea is that this business could best be fostered by properly displaying the goods in the ground floor of a public thoroughfare, thus giving the passing public an opportunity not only to see, but also to handle such goods or articles; thus also providing a centre to which likely users and buyers in other districts than Glasgow could be specially invited to come to see and handle the goods, which, of course, is a very great advantage, for any articles not already known, as compared with mail-order business based on mere advertising by people a long way off."

50. **Excelsior or Wood Wool.**—A British firm requires excelsior or wood wool for Government work. From 50 to 100 tons are desired from Canada immediately. This firm is in a position to furnish the necessary import license. One cwt. bales are preferred, but 2 cwt. bales would be satisfactory. Samples should be sent with quotations. Quotations should be made on board ship at an Atlantic port, or, preferably, c.i.f. Liverpool.

51. **Electrical Supplies.**—A firm in Barbados handling electrical supplies would be glad to communicate with Canadian manufacturers of such supplies.

52. **Packing Cases.**—A London company invite from Canadian manufacturers quotations for 5,000 to 20,000 wooden cases for packing canned fish to be shipped direct to South Africa. Prices either c.i.f. Cape Town or f.o.b. Canadian port of shipment. Terms cash against documents. Measurements: 22½ inches by 14⅛ inches by 8 inches; ends, ⅞ inch thick; tops, bottoms and sides, ½ inch thick. Ends to be marked: 96 half-pound tins, finest Cape Spiny lobster.

53. **Marbleized Tin.**—Canadian manufacturers of marbleized tin in size 20 by 40 inches are asked to communicate with a Newfoundland inquirer.

WE ARE

in a position to know that whenever you buy without first obtaining our quotation, you risk

GIVING AWAY

dollars which should stay in your pocket. For ***Our Products*** are of the ***right quality,***---at the ***right price***---and ***we can make deliveries to suit you of***

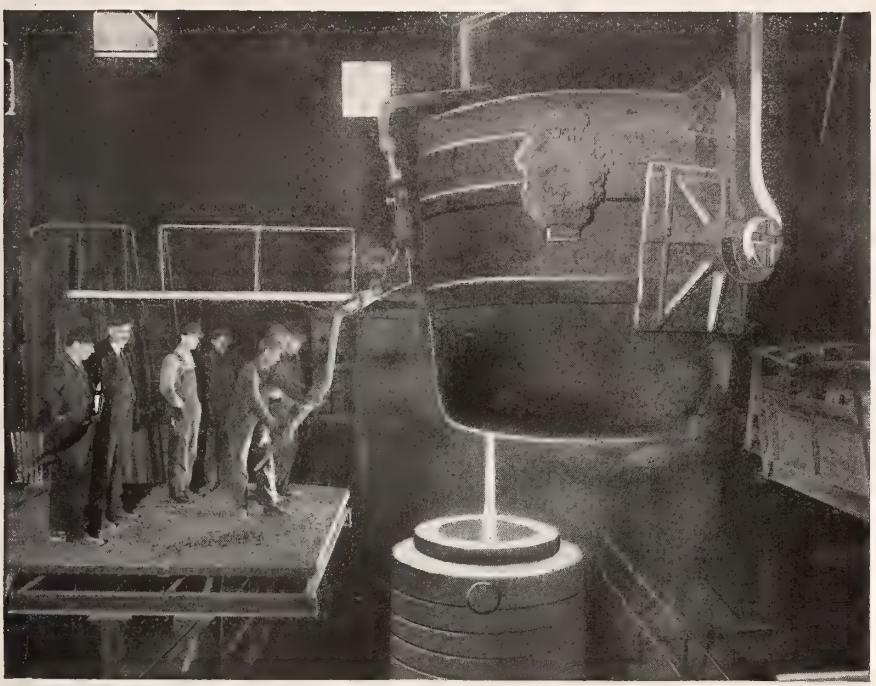
SHEET METAL STAMPINGS

of every description

W. H. BANFIELD & SONS, LIMITED

Head Office and Works: 370-386 Pape Avenue, Toronto, Canada

OUR FIELD IS THE WHOLE WORLD



A 30-Ton Ingot
being poured
at the
Blast Furnace
at
Sydney Mines
N.S.

"OLD SYDNEY COAL"

Shipped from North Sydney, N.S.

At Wabana, Nfld., the Company's Iron Mines are located, these being the richest in ore on the North American continent.

The Company's Collieries and Blast Furnaces are at Sydney Mines, N.S.

From the Steel Works and Car Works at New Glasgow come the Company's finished manufactured products.

Address All Correspondence to the Head Office

NOVA SCOTIA STEEL & COAL CO.
LIMITED

Head Offices:
NEW GLASGOW, N.S.

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

*Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.

ALBERTA.

Cardston.

The Cardston Creamery Association has purchased the site for the erection of a new plant. It is intended to spend $25,000 on a thoroughly up-to-date plant.

Redcliffe.

The Rolling Mills are rebuilding and enlarging their plant.

BRITISH COLUMBIA.

Anyox.

The Granby Co. are considering the installation of a big concentrating plant on their Anyox property.

False Creek.

The Canadian Metals and Equipment Co. have leased a site on Industrial Island for the construction of a plant.

Kyuquot.

The Victoria Whaling Co. are erecting a whaling cannery plant with a capacity of 30,000 to 50,000 cases.

Princeton.

A 3,000 ton oil flotation plant is to be erected by the Canada Copper Corporation to handle the concentrates from its Copper Mountain properties near Princeton.

Vancouver.

On January 15th the Provincial Executive of British Columbia passed an Order in Council authorizing the Government to arrange with the Imperial Munitions Board for the immediate logging of airplane spruce on all vacant areas of Crown land, and calling upon holders of such Crown lands to proceed with the necessary operations forthwith. This action was taken to assist the local representative of the Imperial Munitions Board in increasing the output of airplane spruce.

The British Columbia mineral production of 1917 aggregated in value $37,182,570, compared with $42,290,462 in 1916, a decrease from the latter year of $5,107,892. The decrease in 1917 is largely accounted for by industrial troubles which were more frequent and extensive in 1917 than usual.

The steel steamer "Alaska," capacity 8,800 tons, was launched from the ways of J. Coughlan and Sons on January 19th. The "Alaska" is the first of ten similar steamers for which Coughlan and Sons have the contract.

The wooden steamer "War Nootka," one of the forty-six standardized vessels ordered by the Imperial Munitions Board, was successfully launched in Vancouver on January 14th.

It has been decided by the Provincial Government of British Columbia, in conjunction with the Pacific Steel Co. of Eburne and the Ætna Iron and Steel Co., of Port Moody, to bring an expert to Vaucouver to report on industrial conditions as they might affect the establishment of an electrical steel-making industry at Vancouver, particularly the manufacture of steel plates for shipbuilding. This action was taken by the Provincial Minister of Mines under authority of an Act passed at the last Session of the Legislature, with a view to assisting in the establishment of smelters and refineries in British Columbia. Mr. R. Turnbull, president of the Turnbull Electrical Metals Co., of St. Catharines, and Mr. R. H. Tudhope, of Orillia, are understood to be interested in the Pacific Steel Co. and the Ætna Iron and Steel Co. mentioned above.

It is reported that E. F. Hutchings, of the Great West Saddlery Co., of Winnipeg, and associates are negotiating for a site in the vicinity of Vancouver for a shipbuilding plant. If this plant is established, both wood and steel vessels will be built.

Reports are being circulated to the effect that Government assistance may be extended for the establishment of a large electrical smelting and steel plate industry at Vancouver in order that that city may become a steel shipbuilding centre. It is said that the Government has agreed to join with the Pacific Steel Co., of Eburne, and the Aetna Iron and Steel Co., of Port Moody, in inviting an eminent outside metallurgist to visit Vancouver and make a final report on the proposal.

The Fraser Valley Shipbuilding Co. will construct a new plant.

North Vancouver.

The City Council has passed a resolution suggesting that the Provincial and Dominion Governments should bonus a steel plant. The steel shipbuilding has become such an important industry that the need of a steel plant was felt to be necessary.

South Vancouver.

The erection of a $500,000 rope and twine factory is contemplated. Judge W. H. Bard is interested.

NEW BRUNSWICK.

St. John.

The Blue Ribbon Beverage Co., 82-84 Elm Street, and Ham Brothers, 459 Main Street, will rebuild their factories at a cost of $25,000.

NOVA SCOTIA.

Dartmouth.

The Consumers' Cordage Co. will make repairs to their cordage plant.

Halifax.

Hillis and Sons, Ltd., Hollis Street, plan to rebuild their foundry.

The erection of a steel shipbuilding plant is contemplated by the Department of Public Works, Dominion Government.

Sydney.

The Dominion Iron and Steel Co., Ltd., will start work at once on the erection of a $400,000 coal-washing plant.

The Atlantic Milling Co., Ltd., Pictou, contemplate the erection of mills.

Dominion Bridge Co., Limited

MONTREAL, P.Q.

Engineers, Manufacturers and Erectors of

STEEL STRUCTURES

Railway and Highway Bridges, Buildings, Turntables, Electric and Hand Power Travelling Cranes, Coal and Ore Handling Machinery, Lift Locks and Hydraulic Regulating Gates, Transmission Poles and Towers.

Tank and Plate Work of Every Description
FORGINGS
Gear Cutting and General Machine Work
MARINE BOILERS AND ENGINES

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Cable Address: "DOMINION" Branch Office and Works: TORONTO, OTTAWA, WINNIPEG
Sales Offices: MONTREAL, TORONTO, OTTAWA, WINNIPEG, EDMONTON, REGINA, VANCOUVER

Large Stock of Structural Material at All Works

Dominion Copper Products Co., Limited

Manufacturers of

COPPER AND BRASS

Seamless Tubes, Sheets and Strips
In All Commercial Sizes

Office and Works: LACHINE, P.Q., CANADA
P.O. Address: MONTREAL, P.Q. Cable Address: "DOMINION"



SERVICE

That is not idle words.

QUALITY

That is second to none.

This is all we have to offer—could we offer more?

VICTOR SAW WORKS, Ltd.
HAMILTON - ONTARIO

MADE IN CANADA

Blacksmiths'
Boiler Makers'
Machinists'
AND
Pipe Fitters'
Tools

Write for Catalogue

A. B. Jardine & Co.
LIMITED
HESPELER, ONTARIO

Permit has been granted Rhodes, Curry & Co. for the erection of a store house for the Dominion Tar and Chemical Co.

The mill-house and engine-room, owned by the Cross Fertilizer Co., Ltd., Prince Street, recently destroyed by fire, will be rebuilt immediately.

It is reported that the Dominion Steel Corporation propose to erect a new steel mill at Sydney, N.S., for the manufacture of plates for steel shipbuilding. The establishment of this industry, which will entail an expenditure of several million dollars, is contingent on the Dominion Government's shipbuilding policy being put into effect. It is also stated that the Government has received tentative offers from large United States companies desiring to engage in the manufacture of steel for Canadian ships. These companies, however, require bonuses and concessions before taking up the manufacture of steel products on a large scale in Canada. The Government, it is understood, has not yet decided to bonus corporations desiring to engage in the work, though it will receive propositions and prices submitted for consideration.

ONTARIO.

Brantford.

Contract has been awarded for a $132,000 extension to plant for the Dominion Steel Products, Ltd., Morrell Street.

Dundas.

Messrs. John Bertram Sons & Co. will erect a $150,000 one-story brick shell factory.

Fort William.

An announcement has recently been made that the Canadian Car & Foundry Co. has closed a contract for building steel ships at Fort William, Ont., for the United States, to the value of $10,500,000. This will involve the employment of one thousand men, in addition to the fifteen hundred men that will be working on the company's railway car contracts. Tenders have been received for the construction of a new building, 220 by 200 feet, in which the boats will be built, and a marine railway and slip will also be built for launching the boats as they come from the works. The whole of the material for the contract has been arranged for with the United States Government, and shipbuilding will commence in May. This is the second shipbuilding plant in Fort William, the Great Lakes Dredging Co. being now engaged on the construction of wooden freight steamers.

Gananoque.

The Gananoque Spring and Axle Co. will rebuild their axle-hammer shop recently destroyed by fire.

Hamilton.

The Canada Steel Goods Co., Ltd., Arthur Street, contemplate the erection of a $150,000 four-story reinforced concrete factory.

A $20,000 one-story factory addition will be erected by the Hamilton Bridge Works Co., Ltd., Bay Street North.

A factory, packing house, etc., may shortly be erected on Jarvis Street by the Swift-Canadian Co., Ltd., Chicago, Ill.; local office, 4 Hamilton Avenue, Hamilton.

London.

The London Soap Co., 197 Ottaway Avenue, contemplate $5,000 extension to factory.

The McClary Manufacturing Co., 333 Wellington Street, will remodel building into offices at a cost of $3,500.

Merritton.

Tenders will be called for the erection of a power plant for the Riordon Pulp and Paper Co., Ltd.; head office, 355 Beaver Hall Square, Montreal.

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Oakville.

The plant of the Ontario Brick Co. at Oakville has recently been sold by the liquidators. The purchaser was Mr. F. W. Palfield, of Montreal, who represents eastern interests, and the price paid was $250,000.

Ottawa.

The British-American Nickel Corporation will probably establish a refining plant in the neighborhood of Ottawa; they will also likely install a steam plant at the Murray Mine.

Owen Sound.

The Great Lakes Steel Corporation, Ltd., 22 King Street E., Toronto, will start building operations on a steel plant about April 1st.

Renfrew.

The British Explosives, Ltd., are making repairs to their building, which was recently gutted by fire.

St. Catharines.

A new firm has been incorporated, known as the Engineering and Machine Works of Canada, Ltd., which is to take over the business now carried on at St. Catharines, Ont., by the Jenckes Machine Co., Ltd. This new concern has a capital of $1,000,000, and its head office is at St. Catharines, Ont. Its charter of incorporation empowers it to carry on the business of foundrymen, machinists and structural metal-workers, etc.

Sarnia.

Plans for a pickle factory are being discussed by the farmers and growers in conjunction with the representative of a big Canadian firm.

QUEBEC.

Hull.

The Electrical Smelting Co. of Brantford will shortly erect a smelter here.

Montreal.

General contract has been awarded for a two-story stone and brick factory for the Burland Estate, 2 Place d'Armes.

Ste. Genevieve de Batiscan.

Price Brothers & Co., Ltd., 56 St. Peter Street, Quebec or Batiscan, contemplate the erection of a $30,000 pulp and paper mill on the River Batiscan, near St. Narcisse.

St. Lambert.

Work on the new plant for the Dominion Textile Co., Ltd., will be started during the coming summer. The building will be of reinforced steel and concrete, and will cost approximately $3,000,000.

Three Rivers.

The Canada Iron Foundries, Ltd., St. Maurice Street, will build an addition to their plant, they will also erect an elevator crane, capacity 16 tons.

The St. Maurice Foundry Co. are erecting a brick extension to their factory.

SASKATCHEWAN.

Moose Jaw.

The W. W. Shaw candy factory was recently destroyed by fire. The total damage to building, machinery and stock is estimated at $15,000.

Saskatoon.

The Saskatoon Bread Co., 161 Second Avenue, will erect a factory in the spring.

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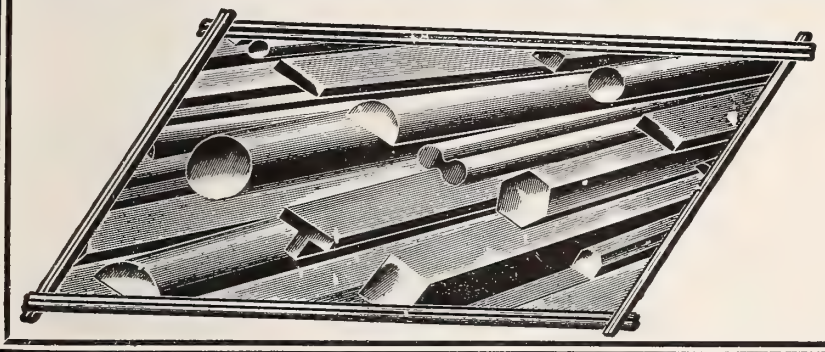
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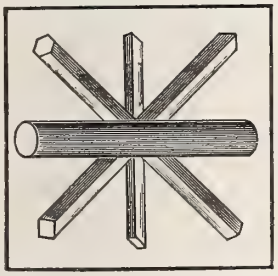
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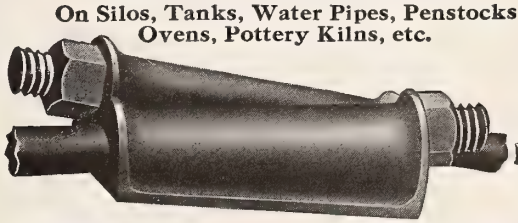
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Interior view of Record Department, Toronto Registry Office showing "Office Specialty" Steel Filing Equipment.

War-Time Burdens of Canada's Treasury

A Simple, yet Exhaustive, Analysis of the Present State of Dominion Finances, Showing How Necessary Funds Are Being Raised and How They Are Being Expended

By H. M. P. ECKARDT

THE course of events since the outbreak of war has been such as to cause manufacturers in every part of the Dominion to interest themselves closely in the various phases of the national financing. In the first place, they have been affected by the excess profits tax, which has applied to their earnings up to the end of 1917, and which, in the same, or a different form, may conceivably be applied to the operations of 1918. Then they have a most important interest in the success of the war loans, since, nowadays, the proceeds of the war loans are largely used in connection with contracts placed in Canada by the British Government. Therefore, from the manufacturers' point of view, it is worth while to review carefully some of the outstanding features of the Federal Government's financing in 1917, with a discussion of the probable revenue and expenditure during the present year, giving attention to the various important sources of income and to the directions in which the money is paid out. While there is a manifest disadvantage in attempting to analyze the 1918 financing of the national treasury, before the figures of the Finance Minister's budget speech are available, nevertheless one may venture to draw certain conclusions from the data now at hand.

Canada's Expenditures.

Let us glance first at the question of expenditures. How much will the Government be required to provide, in order to cover the necessary expenditures for the new year? For the nine months of the current fiscal year (to December 31st, 1917), according to the figures published in the *Canada Gazette*, the special outlay on war and on the so-called capital accounts, has been running practically the same as in the preceding year. Thus war, for the nine months, accounts for $171,748,839 in 1917, as against $170,229,748 in 1916; and the total of war and capital outlay for the nine months of 1917 is $188,764,257, as against $189,203,384 for the same period of 1916. This similarity naturally creates a presumption that the expenditures under these heads for the whole fiscal year (ending March, 1918), will not differ widely from the total shown in the preceding year. Probably it would be wise to allow for an increase in the war expenses, which in the fiscal year, 1916-1917, amounted to $306,488,814. Unless there are some large special items outstanding, it would seem that $350,000,000 should be ample to cover the war outlay; and the outlay on public works, railways, etc., may not exceed $30,000,000—making, say, $380,000,000 of special war and capital outgo. The expenditure on account of consolidated fund; in other words, the ordinary running expenses of the Government, amounted to about $97,000,000 in the nine months ending December, 1917—this being an increase of over $15,000,000, as compared with the same period of 1916. Taking this outlay on the pro rata basis, a total of something like $130,000,000 is indicated for the whole fiscal year (ending March, 1917). The item, however, is usually swollen considerably by means of delayed entries, and, when the revised figures appear, they may easily carry the total to $150,000,000 or $160,000,000. Thus, the grand aggregate promises to be more than $500,000,000—perhaps reaching $530,000,000 or $540,000,000. The grand total for 1916-1917, according to the revised statement, was $483,000,000.

Amount to be Raised.

This represents what the outlay on our own account may reach for the fiscal year ending March, 1918. In view of the prospective increase of the Canadian expeditionary forces, it does not appear that the figures for the coming fiscal year (ending March, 1919), can be less—assuming that the war continues for another year—and thus we see that the Government is faced with the problem of raising, by taxation and by means of loans, roundly $550,000,000, apart altogether from the money required to make loans to the Imperial Government. The latter item will depend on the necessities of the Allies, on the amount of supplies we can produce or manufacture, on the shipping facilities available for transporting it to Europe, and last, but not least, on the ability of our Government to get the necessary funds. So, it will be seen that the estimates, to the effect that the Finance Minister would be obliged to find $700,000,000 or more during the present year, do not appear to be exaggerated. Now, let us try to discover where and how he is to get the money.

There is, first, the revenue on account of consolidated fund, comprising the returns from investments of national funds and from taxation—direct and indirect. In his budget speeches, during the war period, Sir Thomas White has not ventured to estimate the ordinary revenue for any lengthy period in advance. Circumstances change very rapidly, and the most careful estimate might be thrown awry by arbitrary Governmental action necessitated by the war or by some unexpected development of the great struggle. It may be said that the total revenue for the fiscal year ended March, 1917, was $232,700,000; and that the total revenue for the nine months of the current fiscal year—to December 31st, 1917—was $190,000,000, or $24,000,000 greater than for the same period of 1916. These figures apparently point to a revenue of $250,000,000, or more, for the current fiscal year. They do not, however, ensure that when the new fiscal year commences, in April, 1918, the revenue will run into the treasury in undiminished volume.

As regards taxation during the present year, there are several interesting points to take into consideration. The customs revenue, which ordinarily accounts for about 60 per cent. of the consolidated fund income, has latterly shown a tendency to decline. In the month of December, the total customs collections were $9,416,000, as against $11,578,000 in November and $10,932,000 in December, 1916. And in Janu-

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ary, 1918, the amount received from customs was $10,298,000, as compared with $12,936,000 in January, 1917. Imports from the United States have been declining—largely owing to the action of the Washington Government in restricting exports of some raw materials much used in certain Canadian industries. Also, it may be the case that the people of Canada are at last practising economy more generally in regard to imported luxuries. It is impossible to tell to what extent this development will affect the customs collections in 1918. Uncertainty also exists as regards tariff changes. While the general belief in manufacturing and mercantile circles is that no important changes will be made, nevertheless the new Union Government may think it necessary to make some adjustments. So, on the whole, it does not seem wise to expect increase of customs collections in 1918; the total may conceivably decline.

Direct Taxation.

The manufacturing interests are closely concerned in the development of the Dominion Government's recently instituted plans for direct taxation. The excess profits tax, in particular, affected the operations of many industries to an important extent, especially after it was so revised as to call for 50 and 75 per cent., respectively, of all profits in excess of 15 and 20 per cent. on invested capital. It is open to question whether the Government would not have received a greater return on the 1917 operations of Canadian manufacturers, merchants, etc., if the tax had been more moderate. It seems certain that a lower tax would conduce to increase of production. As yet, nothing definite is known as to the re-enactment of this tax in 1918. When the Finance Minister introduced his income tax last year, he referred to the excess profits tax in such a way as to create the impression that it would not be re-enacted; but pressure of public opinion later, apparently, compelled him to change his position, and the current belief now is that, when Parliament meets, an excess profits tax, to apply to the operations of 1918, will be passed. The reports of industrial corporations for 1917 show that, speaking generally, net earnings were considerably below the level of 1916—in other words, excess or "war" profits are disappearing, and there will not be nearly as much collected in the form of taxes on them as in the earlier years of the war. In view of the effect which an oppressive tax of this description has in repressing productive effort, it would seem to be wise for the Government to greatly modify its excess profits tax. If the owners of certain industries still manage to make extraordinary profits, the Government will probably get its full share of these returns through the income tax. The income tax law provides that where a corporation is liable for excess profits tax and for income tax, it is to pay but one of them—whichever is the greater.

Probable Revenue.

Assuming that the excess profits tax is re-enacted, it is probable that the revenue in 1918 from it and from the income tax will be sufficient to offset any decline that may occur in customs revenue. For the fiscal year ending March, 1917, the total of miscellaneous revenue was $28,000,000; and for the nine months of the current fiscal year the figures point to about the same result for the full year. Prior to the war, miscellaneous revenue ran about $8,000,000 per year; so the increase of about $20,000,000 may be taken as comprising the income from the new special taxes, the greatest of which would be the excess profits tax.

Considering all of these points, it seems reasonable to expect that the Government may get $250,000,000 revenue on account of consolidated fund in the fiscal year 1918-1919.

In other words, this revenue might, as in the case of the current fiscal year, be large enough to provide for the ordinary working expenses of the Government, for the capital outlay on public works, etc., and finally leave a surplus of $50,000,000 or $60,000,000 to apply on the war expenses. If our total war expense bill can be kept at $350,000,000 or $360,000,000, as it appears to be running at present, that would leave $300,000,000, or thereabouts, to be otherwise provided, apart from the amounts we lend to the Imperial authorities. In connection with our own war outlay, it is to be remembered that the biggest part is represented by the pay and maintenance of Canadian forces overseas. That item is financed by the British Government, which pays into the Bank of Montreal, London, England, such sums as are required. The grand total of advances so made to us by Britain, up to October 31st, 1917, according to a statement furnished to the *Monetary Times* by the Finance Department at Ottawa, was $378,000,000. This is an average of about $125,000,000 per year; but, possibly, in the last year it may have been running at $16,000,000 per month, or more. If we may presume that the Mother Country is thus financing $200,000,000 of our yearly war expense, that would leave for us to provide at home, say, $100,000,000, plus the amounts loaned here to the British Government.

The Next Loan.

As a result of the Victory Loan flotation, the Government will, supposedly, be in funds for a considerable part of 1918—in other words, it has already borrowed a considerable part of the funds required to finance its own operations and the loans to Great Britain. Not until later in the year will large new capital issues by the Dominion in the home market become necessary. Although it is usually assumed that there is no prospect of our getting further loans in the United States, there is no doubt that the commercial relations between the two countries would be greatly improved by such a loan. Manufacturers importing raw materials and other goods have been heavily penalized by the high premium on American funds; and the unequal exchange rates are detrimental to international trade in many other respects. So, if a foreign loan would abolish the premium, it might be highly advantageous, even though the rate of interest is high.

If the war goes on, it is difficult to see how Canada can avoid another great domestic loan towards the close of the year. There is a chance that bumper crops in the West and in Ontario and Quebec may facilitate the flotation of such a loan; and the chief purpose of the newly-instituted plan for Government regulation of new security issues in the home market is to conserve the available supply of investment funds for the war bonds. The issues of bonds made by provinces, municipalities, and corporations, usually have a considerable effect in stimulating industrial activity in this country—the proceeds, in numerous instances, are expended in construction work, which involves the giving of many contracts to Canadian manufacturers. However, it is not likely that the Order-in-Council will be carried out with unnecessary harshness. The arrangement which the Dominion Government is said to have made with the Provincial Governments, whereby it is to lend money to the Provinces at 6 per cent., as a means of obviating new Provincial issues, shows that fair consideration will be given to the necessities of would-be borrowers. It is to be noted, also, that the monopolization of the home market by Dominion bonds leads directly to large new contracts for our manufacturers when, as is usually the case, the proceeds of Dominion bond issues are to be used in loans to England.

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S.57

WINNIPEG PAINT AND GLASS.

The Winnipeg Paint and Glass Company, during its last fiscal year, according to Mr. E. L. Sander, the managing director, enjoyed an increase of 40 per cent. in sales over the previous year. "We have every confidence," he adds, "that in the first six months, at least, of 1918, the building supply business will continue along about the same lines as 1917. The second half of the year will depend entirely on war conditions, and, especially, crop conditions in our territory."

CANADA IRON FOUNDRIES.

Last Year's Sales Were Nearly Double Those of the Previous Year.

Substantial increases in sales and earnings are shown in the annual report of Canada Iron Foundries, Ltd. Sales increased 44 per cent., which made the total for the twelve months ended September 30 last about $2,849,000, against $1,979,933 in 1916. Earnings for the year amounted to $528,097, compared with $337,692 last year, including $14,160 earned as interest, discount, etc. The net revenue of the year was $542,257.

Edgar McDougall's report as president states that, while there are indications that some branches of the company's business may fall off during the current year, the directors hope that this will be compensated by an increase in other departments. The renovation of the Three Rivers plant, it is stated, has been practically completed.

Under existing conditions, it has not been thought desirable to operate either the mines or the furnaces of the company. One of the furnaces at Midland was sold for $325,000, and since the close of the year the money has been received by the trustees and applied to the redemption of A debenture stock.

The balance sheet reflects the recent conservation of earnings. Current assets foot up $1,217,948, with current liabilities only $136,531.

CANADIAN CROCKER-WHEELER.

The Canadian Crocker-Wheeler Co., of St. Catharines, whose fiscal year ended December 31st last, reports a favorable condition of affairs in 1917, in comparison with the 1916 period. A new machine shop and power house were completed during the year, and Mr. R. A. Stinson, the vice-president of the company, announces that the outlook for business in 1918 is most encouraging. "We have recently," he adds, "completed the equipping and re-tooling of our ordnance department for the manufacture of 75 MM French shells for the American Government. Our contract for these shells should keep this department busy for, at least, eight months."

DOMINION BANK'S RECORD FOR 1917.

Assets Pass Hundred Million Dollar Mark—Business of the Year Very Satisfactory to Shareholders.

A comparison of the balance sheet of the Dominion Bank, as at the end of 1917, with that at the end of 1916, reveals noteworthy progress. The total assets of the bank are now $109,436,145; a year ago, they were $92,866,692. The growth

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therein is, therefore, in excess of 16½ million dollars. In 1914, shortly after the beginning of the war, the total assets were $80,457,109, so that the expansion in 1917, in this respect, has exceeded the combined results of 1915 and 1916.

More remarkable, even, than the growth in total assets has been the expansion in immediately realizable assets. These rose, during the year, from $37,625,896, to $57,660,453, an increase of well over twenty millions, which brings the liquid ratio to 60 per cent., as compared with 47.4 per cent. in 1916. Of these quick assets, $27,370,135 is in the form of cash (an increase of seven and one-half millions), and the remainder consists of securities and call loans against securities. The bank holds $9,400,000 of Canadian Government securities, as against less than a million a year ago, and its total holdings of this class of securities, including British Treasury Bills, have risen from $7,500,000 to nearly $9,900,000.

Deposits and note circulation both showed a marked increase. The circulation is particularly notable, having risen to $9,417,684, or 137 per cent. of the paid-up capital, the excess circulation being, of course, fully provided for by the deposit in the Central Gold Reserve. Total deposits were $83,700,000, an increase of over 13 millions during the year.

These earnings allowed for the payment of the usual 12 per cent. dividend, generous donations to patriotic objects, and the writing off of $200,000 from Bank Premises Account. No provision for depreciation has been necessary since 1914, and in the last four years the sum of $400,000 has been written off bank premises, while the Pension Fund contribution has been maintained, and large sums have been devoted to various patriotic causes.

WAYAGAMACK PULP.

Earnings for 1917, as Shown in Annual Report, Were Slightly Less Than Those for 1916.

Earnings of Wayagamack Pulp & Paper Co., Limited, for the year ended November 30, 1917, show a slight falling off as compared with 1916, the total before depreciation and interest being $966,349, as against $979,362 the previous year. In 1916, however, the company deducted $90,000 from surplus for the business profits tax, while the tax for 1917 was apparently provided for before showing earnings. With allowance for the unknown tax factor in 1917, it may be presumed that if a more accurate basis of comparison were possible, the 1917 profits were actually slightly in excess of those for 1916.

After a slightly increased allowance for depreciation, payment of bond interest, and the deduction of a sum of $72,382 for stumpage written off the company's limits—a new item in the company's statements—the surplus balance for the year was $513,965, as against $604,724 the previous year, and $286,873 for the seventeen-month period ended November, 1915. Surplus as shown was therefore equal to 10.3 per cent. earned on the $5,000,000 common stock, on which no dividends have yet been paid, as against 12.1 per cent. earned the previous year and earnings at the rate of 4 per cent. in 1914-15.

Comparisons, however, are again inaccurate because of the variation in treatment of the business profits tax and also because of new deductions, such as the writing off for stumpage. An adjustment of $347,216 in the surplus of the company as carried forward from 1916 is not explained in the directors' report. Apparently it is one result of some new methods of accounting, which are in evidence in other parts of the financial statement. The statement merely shows that on November 30, 1916, total surplus stood at $697,274, and from that there had been deducted $347,216 as an adjustment of surplus from previous years.

Established in 1836. Incorporated by Royal Charter in 1840.

THE BANK OF BRITISH NORTH AMERICA

Paid-up Capital - $4,866,666
Reserve Fund - $3,017,333

Statement to the Dominion Government (Condensed), 31st December, 1917

LIABILITIES TO THE PUBLIC.

Notes in Circulation	$ 5,509,654
Deposits	57,922,717
Due to other Banks	605,259
Bills Payable (Acceptances by L/O)	1,891,874
Acceptances under Letters of Credit (as per contra)	1,042,347
	$66,971,851

ASSETS.

Cash on Hand and in Banks	$12,881,613
Deposit with Government o/a Note Circulation	245,822
Deposits in Central Gold Reserve	2,420,000
Government, Municipal and other Securities	15,045,380
Call and Short Loans	7,240,348
Current Loans and Discounts and other Assets	36,029,367
Liabilities of Customers under Letters of Credit (as per contra)	1,042,347
Bank Premises	2,399,523
	$77,304,400

Riordon Pulp & Paper Company, Limited

Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS

CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72 INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

THE DOMINION BANK

At the Forty-seventh Annual General Meeting of the Shareholders of The Dominion Bank, held at the Head Office in Toronto, on 30th January, 1918, the following Statement of the affairs of the Bank as on the 31st December, 1917, was submitted:

PROFIT AND LOSS ACCOUNT

Balance of Profit and Loss Account, 30th December, 1916		$363,442 39
Profits for the year, after deducting charges of management and making full provision for bad and doubtful debts	$1,087,477 45	
Less		
Dominion Government War Tax (on circulation)	$60,000 00	
Taxes paid to Provincial Governments	22,415 00	
	82,415 00	
Making net profits of		1,005,062 45
		$1,368,504 84
Which amount has been disposed of as follows:		
Dividends (quarterly) at 12 per cent. per annum	$720,000 00	
Contribution to Canadian Patriotic Fund	$25,000 00	
Contribution to British Red Cross Society	2,500 00	
Contribution to British Sailors' Relief Fund	2,000 00	
Contribution to Y.M.C.A. Military Financial Campaign	1,000 00	
	30,500 00	
Contribution to Officers' Pension Fund	25,000 00	
	$775,500 00	
Written off Bank Premises	200,000 00	
	$975,500 00	
Balance of Profit and Loss Account carried forward	393,004 84	
		$1,368,504 84

GENERAL STATEMENT

LIABILITIES

Capital Stock paid in		$6,000,000 00
Reserve Fund	$7,000,000 00	
Balance of Profit and Loss Account carried forward	393,004 84	
Dividend No. 141, payable 2nd January, 1918	180,000 00	
Former dividends unclaimed	1,626 75	
		7,574,631 59
Total Liabilities to the Shareholders		$13,574,631 59
Notes in Circulation		$9,417,684 00
Balance due to Dominion Government		1,816,452 83
Deposits not bearing interest	$15,216,783 84	
Deposits bearing interest, including interest accrued to date	66,731,311 81	
		81,948,095 65
Balances due to other Banks in Canada		868,467 99
Balances due to Banks and Banking Correspondents elsewhere than in Canada		815,743 55
Bills Payable		233,352 00
Acceptances under Letters of Credit		362,560 76
Liabilities not included in the foregoing		399,156 68
Total Public Liabilities		95,861,513 46
		$109,436,145 05

ASSETS

Gold and Silver Coin	$1,932,683 09	
Dominion Government Notes	13,479,952 25	
Deposit with Central Gold Reserves	4,300,000 00	
Notes of other Banks	1,027,092 04	
Cheques on other Banks	4,455,142 12	
Balances due by other Banks in Canada	9,459 19	
Balances due by Banks and Banking Correspondents elsewhere than in Canada	2,132,806 69	
	$27,337,135 38	
Dominion and Provincial Government Securities, not exceeding market value	9,403,914 37	
Canadian Municipal Securities, and British, Foreign, and Colonial Public Securities other than Canadian, not exceeding market value	9,889,852 47	
Railway and other Bonds, Debentures and Stocks, not exceeding market value	3,397,460 13	
Call and Short (not exceeding thirty days) Loans in Canada on Bonds, Debentures and Stocks	3,987,121 93	
Call and Short (not exceeding thirty days) Loans elsewhere than in Canada	3,644,969 22	
		$57,660,453 50

THE DOMINION BANK—*Continued*

Other Current Loans and Discounts in Canada (less rebate of interest)	$45,590,915 72	
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)	72,694 26	
Liabilities of Customers under Letters of Credit, as per contra	362,560 76	
Real Estate other than Bank Premises	23,508 73	
Overdue Debts (estimated loss provided for)	89,932 06	
Bank Premises, at not more than cost, less amounts written off	5,317,784 70	
Deposit with the Minister of Finance for the purposes of the Circulation Fund	304,500 00	
Mortgages on Real Estate sold	13,795 32	
		51,775,691 55
		$109,436,145 05

E. B. OSLER, *President.*

C. A. BOGERT, *General Manager.*

AUDITORS' REPORT TO SHAREHOLDERS

We have compared the above Balance Sheet with the books and accounts at the Chief Office of The Dominion Bank, and the certified returns received from its Branches, and after checking the cash and verifying the securities at the Chief Office and certain of the principal Branches on December 31st, 1917, we certify that, in our opinion, such Balance Sheet exhibits a true and correct view of the state of the Bank's affairs, according to the best of our information, the explanations given to us and as shown by the books of the Bank.

In addition to the examinations mentioned, the cash and securities at the Chief Office and certain of the principal Branches were checked and verified by us at another time during the year and found to be in accord with the books of the Bank.

All information and explanations required have been given to us and all transactions of the Bank which have come under our notice have, in our opinion, been within the powers of the Bank.

G. T. CLARKSON, R. J. DILWORTH, } of Clarkson, Gordon & Dilworth, C.A.

Toronto, January 18th, 1918.

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Howard Smith Paper Mills, Limited, Montreal

The Merchants Bank of Canada

Head Office - MONTREAL

Paid-Up Capital - -	$7,000,000
Reserve Funds - -	7,421,292
Total Deposits - -	92,102,072
Total Assets - - -	121,130,558

BOARD OF DIRECTORS

SIR H. MONTAGU ALLAN, C.V.O., President
K. W. BLACKWELL, Vice-President

THOS. LONG, F. HOWARD WILSON, A. B. EVANS
F. ORR LEWIS, A. J. DAWES, E. F. HEBDEN
ANDREW A. ALLAN, F. ROBERTSON, THOS. AHEARN
C. C. BALLANTYNE, G. L. CAINS, LT.-COL. J. R. MOODIE

E. F. HEBDEN, Managing Director
D. C. MACAROW, General Manager
T. E. MERRETT, Superintendent of Branches and Chief Inspector

A GENERAL BANKING BUSINESS TRANSACTED

236 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

New York Agency: 63 and 65 WALL ST.

The Bank of Nova Scotia

ESTABLISHED 1832

Capital.....	$6,500,000
Reserve Fund	12,000,000
Total Assets ..... Over	110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

ABITIBI POWER AND PAPER.

Net Surplus Earned in 1917 Was Nearly $100,000 Greater Than in Previous Year.

The annual statement for 1917 of the Abitibi Power & Paper Company shows that earnings before providing for depreciation, exhaustion of timber areas, interest, etc., were $1,323,001. For depreciation, writing off, etc., there was appropriated $981,879, and a balance of $341,123 was carried forward. This, added to a surplus of $360,925 at the end of 1916, made a total of $702,047, out of which were paid dividends on the preferred stock amounting to $70,000, leaving a net surplus of $632,048 at December 31, 1917.

The year's net surplus of $341,123 before dividends compares with $256,164 in 1916. If a full year's dividend on the preferred stock were allowed for in each case the surplus would equal 5.4 per cent. earned in 1917, against 3.7 per cent. in 1916. In view of the fact that no details are given as to the nature of the large appropriation for reserves, etc., no other comparisons are possible. It may be noted, however, that the gross profit, $1,323,001, compares with $625,878 in 1916. The only point of difference in this comparison is that interest was deducted after showing gross profit in 1917 and before showing gross profit in 1916. In the property account for the year was included an expenditure of $2,162,897 on extensions and improvements by which the daily capacity of the plant is increased to 325 tons ground wood pulp, 130 tons sulphite pulp and 225 tons of paper.

Additional capital, rendered necessary by increased production and increased cost of operation, was obtained through the issue and sale of $1,000,000 of 15-year 7 per cent. convertible debenture stock.

SWIFT & COMPANY'S YEAR.

Gross Sales in 1917 Reached a Total of $875,000,000.

The gross sales of Swift and Company, the big packing concern with interests in the United States and Canada, reached the amazing total of $875,000,000 in 1917, making this company second only to the United States Steel Corporation on the continent as regards volume of business. In 1916 the sales totalled $575,000,000, and in 1914 amounted to only $425,000,000. Net profits in 1917 were $42,318,381, or at the rate of 14.3 per cent. on the $100,000,000 of stock outstanding, while in 1914 the net amounted to only $9,450,000 or at the rate of 12.6 per cent. on the $75,000,000 of stock then outstanding. In the three years of operations under war conditions gross income has increased more than 100 per cent. and net over 350 per cent. Under war conditions the big packers have filled a very large export demand for their products and prices have advanced by leaps and bounds, particularly in the last year. In 1917 prices advanced so rapidly that even between the time of slaughtering the animals and the placing of the products on the markets the increase in values, and consequently of profits, was larger than anticipated.

In view of the fact that the packers have always prided themselves upon the small margin of profits, on which, because of rapid turnover and the intensive utilization of by-products, they have been able to do business, it is interesting to look at this feature of the results in the period referred to. Up to 1916 the margin of profit amounted, on the average, to less than 3 per cent., while most industrials showed from 10 to 15 per cent. In other words out of every dollar of sales only 3 per cent. was profit. In 1916, however, rising

prices and greater rapidity of turnover permitted the company to pay 3.56 per cent. of its turnover, and in 1917 it amounted to 4.83 per cent.

Considering the fact that the United States Government recently announced its decision to limit the profits of the packing industry to 9 per cent. on the money employed, it is explained by the company that this applies to the slaughtering and meat packing end of the industry and not to the important by-products. The report states that the Government's control and limitation of profits will not affect dividend payments unfavorably.

BELDING PAUL CORTICELLI

Reports a Slight Increase in Sales and Profits for 1917 Over the Previous Year.

The report of Belding Paul Corticelli for the year ending November 30, 1917, showed a slight increase over the previous year both in sales and in profits. The sales were $2,073,595, as against $1,895,467, while the manufacturing and trading profits were $232,999, compared with $225,126. This, by the way, shows that the percentage of profit for the year 1917 was slightly less than the year before owing to the much higher costs of production that were not all "absorbed" in the price of the goods. The net profits were $142,754, as compared with $135,986.

Probably the most satisfactory result of the year to the directors was the ability to clean off 1½ years of deferred dividends on the preferred, which amounts to $865,300 outstanding, and bears 7 per cent. This had not been touched since June, 1913, so that 3½ years were due last year, and this would have amounted to 4½ by the end of the year. There still remain 2½ years to pay, and the report states that "the outlook for the ensuing year is favorable, and your directors are hopeful that the accumulated preferred dividends may be further substantially reduced." During the year the dividend payments amounted to $125,457 in all, reducing the balanced profit and loss to $249,475, compared with $321,320 as at the end of November, 1916. The accumulated dividends now amount to $151,427.50. Nothing has been paid on the common of $749,500.

The report indicates that the mill is in a favorable physical position for the new year. During 1917 a new bleachery was added to the Coaticook plant, giving the company a much better yarn at a lower bleaching cost. A number of repairs also were made, resulting in a better dye house and more efficient water service from the canal.

WELLAND PROSPERS.

Industrial Commissioner's Report for 1917 Shows All-Around Gains in Industry.

In his report to the Council and Board of Trade of Welland, for 1917, L. B. Duff, the industrial commissioner of the city, estimates that the value of Welland's manufactured products was $28,642,390, or not far short of $10,000,000 more than in 1916. Workers received as wages $5,569,190 or 54 per cent. more than in the previous year and the number of wage-earners was increased from 4,890 to 5,305. Though Welland added but one industry to its list in the year, the enlargement of industries already in operation and the adding of new equipment called for the expenditure of over a million dollars. The population within the city limits increased from 7,905 to 8,823.

Character in Letter Headings

Your letter-head is the point of contact between you and thousands of clients and prospective clients, and the impression made by it is extremely important. It either inspires confidence in you and a favorable atmosphere for the reception of your message---or the reverse.

Earnscliffe Linen Bond

(Facsimile of Watermark)

is a "Rolland quality" favorite. Its whiteness, finish, crackle and "feel" as one picks it up, combine to give character to the letter-head. Leading Canadian business houses have used it for a generation with satisfactory results. Carried in stock and recommended by all reliable printers and lithographers.

Sample book on request.

The Rolland Paper Co., Limited

High-grade Paper Makers

General Offices: 142 St. Paul St West, Montreal

Mills at St. Jerome and Mont Rolland

ELECTRIC SMELTING.

Extent of the Industry in Canada a Surprise to Those Who Doubted Its Possibility.

Not many years ago, the opinion prevailed in Canada that, while electric smelting was interesting, the time was far distant when it would be put into practical operation. The situation, however, has radically changed. There are, at the present time, 32 Heroult electric furnaces in Canada, and 22 of other types—in all, 54 furnaces, using the electric process. These furnaces have a capacity of 173,000 tons of iron and steel, 50,000 tons of ferro-silicon, and 8,000 tons of other ferro-alloys, per annum. The British Forgings plant at Toronto, has ten electric furnaces of the Heroult type, and a total capacity of 60 tons per heat, or about 72,000 tons per annum, making it the largest electric process steel plant in the world.

CHAIN COMPANIES AMALGAMATE.

Columbus Chain Co. and McKinnon Chain Co. Unite—Fire Welded Chain to be Made in Canada.

The Columbus Chain Company, with factories at Columbus, Ohio, and Lebanon, Pennsylvania, and the McKinnon Chain Company, with factories at Buffalo, New York, and St. Catharines, Ontario, have been united, under the name of the Columbus McKinnon Chain Company. The new company have formed a Canadian organization, known as McKinnon Columbus Chain, Limited, with general offices at St. Catharines, Ont.

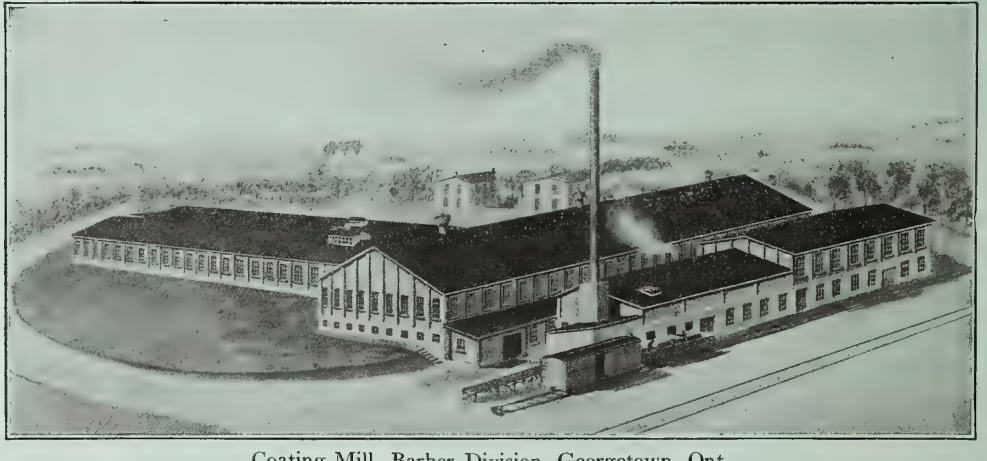
Besides offering the trade a full line of electric welded chain, it is the intention, in the near future, to manufacture fire-welded chain at St. Catharines, under supervision of experienced men from the Columbus plant. The new company will, therefore, be in a position to offer chain of the Columbus Company—but, manufactured in Canada. Until the Canadian plant is in operation, it is said orders for fire-welded chain will be imported from Columbus, Ohio.

The McKinnon Columbus Chain, Limited, was incorporated by L. E. McKinnon, D. S. Brisbin, and W. A. McKinnon, all of St. Catharines, with a capital of $1,000,000.

SEVENTY OCCUPATIONS TAUGHT.

Montreal Manufacturers' Great Willingness to Co-operate With M.H.C. Vocational Instructors.

At the present time, in Montreal, there are 175 re-educational courses given to returned soldiers, comprising instruction in seventy different occupations. The policy of the Military Hospitals Commission, to combine instruction under competent teachers, selected from returned officers, N.C.O.'s and men, with the practical instruction, under practical conditions, has been found to work most satisfactorily indeed. The marked interest displayed by the men, and their ambition to succeed, is a constant inspiration to the teaching staff. The great willingness of manufacturers to co-operate with the vocational department, in giving over their plant facilities, for instructional purposes, indicates clearly the wonderful appreciation of the services rendered by returned men at the front, and the importance of the great economic problem which confronts the nation.



Coating Mill, Barber Division, Georgetown, Ont.

The Largest and Best Equipped Mill in Canada for the Coating of Paper.

"Maple Leaf" "Beaver" "C.A." Coated

Insist on these Brands being used in your Catalogue

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Simcoe and Pearl Sts. TORONTO



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Made in Canada

Shelving Saves Time and Space

OUR steel shelving for shops, storerooms and factories, standardized to permit of extension as required, economizes on your floor space, and saves the time of employees by keeping everything in its place, ready to hand when wanted.

DENNISTEEL Shelving is shipped "knocked-down." All that is required to erect or dismantle is a screw-driver. It is stronger than wood and carries weight better; cannot split, rot or warp; is FIREPROOF and indestructible.

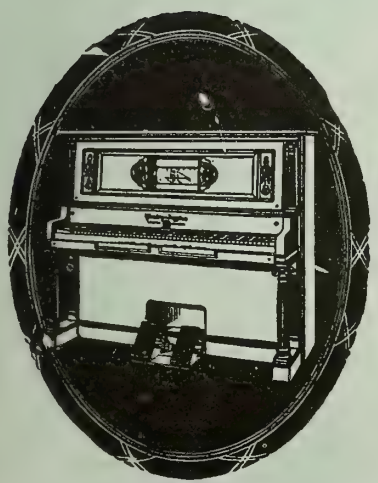
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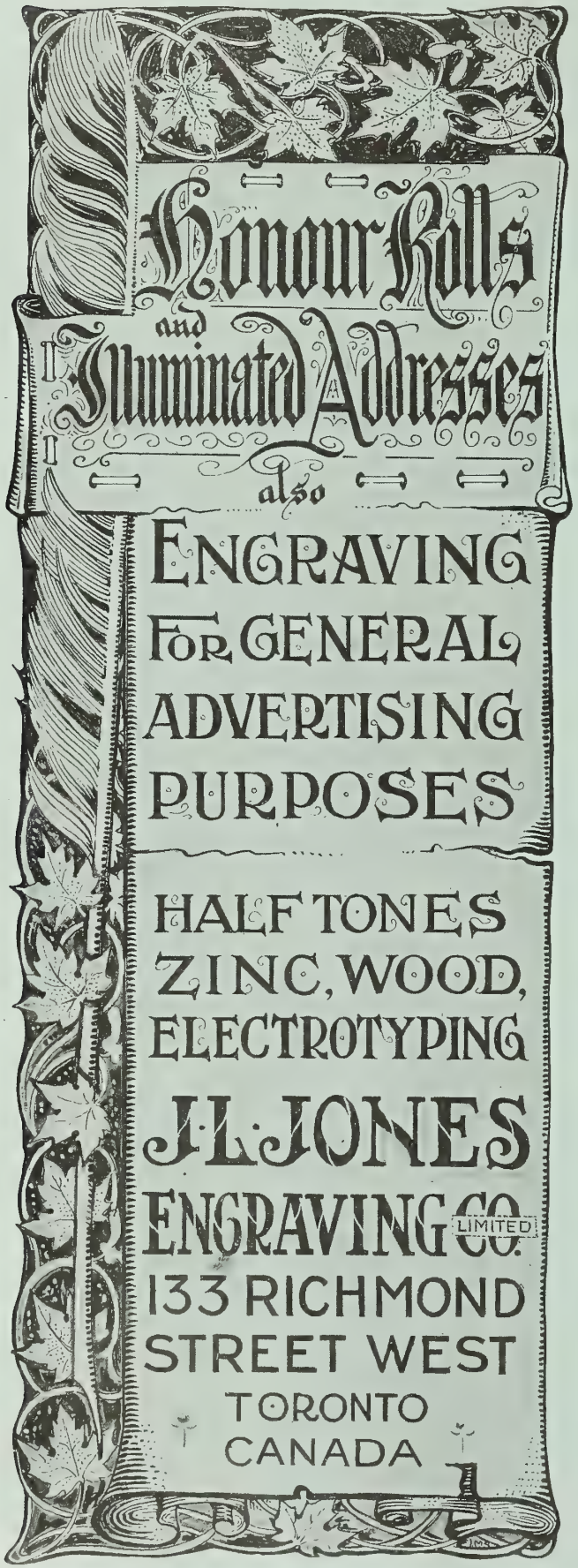
In the opportunity for recreation thus afforded, many busy men find enjoyment hitherto undreamed of, as well as a complete rest from the business worries and cares of the day. If you find it hard to leave these cares behind you when you go home, depend upon it, a Gourlay-Angelus will make you forget them.

One Toronto manufacturer tells of this pleasure in a Gourlay-Angelus as follows:—"I have always been glad I purchased the Gourlay-Angelus. The longer I have it the more I enjoy it and the more I use it."

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188 Yonge St., Toronto



Australia's Ships

Commonwealth Reported to be Making Big Profits Out of Operation of its State-Owned Vessels

Rarely has a greater surprise been given than that conveyed in a recent announcement of the Prime Minister, to the effect that the Commonwealth Government has placed orders for fourteen ships in the United States, states D. H. Ross, Canadian Trade Commissioner at Melbourne, Australia, in a letter to the Department of Trade and Commerce.

Since the war, 121,192 tons of coastal shipping has been withdrawn, by periodical requisitioning by the Government, for transport and other urgent Imperial work. The decision of the Government, to replace, at least, a portion of this tonnage by American cargo carriers, was quite unexpected.

It is stated that ten of the new fleet will be ordinary steamers, with a speed of nine to ten knots. They are being specially constructed for wheat transport, and will have a dead-weight tonnage of about 3,300 tons. Four of the vessels are to be fitted with Diesel oil engines, and, therefore, can be classed auxiliary ships.

In *Weekly Bulletin*, No. 660, there appeared particulars of the fifteen cargo steamers purchased in June, 1916, by the Commonwealth Government. This fleet, comprising 65,245 tons, gross, and 41,868 tons, net register, has been actively employed, at such remunerative rates, that it is now estimated the net earnings have paid off the original outlay of approximately, £2,000,000.

In addition, the Commonwealth Government's shipping department has controlled, since the beginning of the war, twenty-one steamers, aggregating 108,419 tons, gross register, and five sailing vessels, of 12,312 tons, gross. One of the steamers has since been made available to the Government of India. This fleet of sailers has been augmented by the purchase of a large ship in Melbourne, which is now being refitted for oversea trade.

On delivery of the steamers, and auxiliary vessels, now under construction in the United States, the Government will be operating forty-five steamers, four oil-engined ships, and six sailing vessels. This fleet will serve a most necessary purpose, for the transfer of Australian produce oversea, earning profitable freights on return voyages.

As the result of several conferences with the labor unions, and others interested, matters are rapidly developing towards the Commonwealth Government launching a vigorous shipbuilding policy, in several Australian states. The chief cause of delay has been indecision as to the type of ship best suited to the needs of the Commonwealth. At recent conferences, it had appeared almost certain that the composite type of ship would be adopted, but, on October 27, the Government decided upon the standardized type of steel ship, similar to that being built in England.

Australia is not in a position to supply, immediately, all the material necessary. Negotiations were being carried on, with the Newcastle Steel Works, for the supply of such material, as that plant could provide, for six ships of the standardized type. Members of the conference were informed, that it would be necessary to import, from America, steel plates of a size unprocurable in Australia, and, it was expected, that 500 tons a month of this material could be delivered.

In addition to several privately-owned docks and engineering establishments, the Commonwealth operates an extensive shipbuilding plant at Sydney, and the Victorian State Government has a modernly-equipped yard at Melbourne, capable of constructing steamers of fair size.

"Electricity by Ration"

It stands to reason that unless a heavy voluntary saving in current consumption is made so that our munitions plants and other war industries may run at full capacity, we may yet all be put "on ration" for our electrical energy supply. The Toronto Electric Commissioners hope that this will not be necessary if *every* user will turn off all lamps and switch off all motors and heaters whenever not absolutely needed.

For the economies already being practised we are very grateful to you indeed.

Toronto Hydro-Electric System

282 Yonge St. Branch—Gerrard and Carlaw

Fire! Fire! Fire! Some of you get at the Pails---quickly

BUT SUPPOSING THEY CANNOT BE LOCATED



The first five minutes of any fire is when you need to be right on the job with a few pails of water—quick! Have a number of Eddy's Fibre Pails handy all the time and keep them filled. In an emergency they will save you thousands of dollars fire loss. A "Safety First" idea of this kind is not an expense. It is a necessary investment that may net you many thousand per cent. at any time. Better put in a battery of Eddy's Fibre Pails now rather than wish you had, when you behold your mill a pile of ashes and twisted machinery.

Our Fibre Pails are made of Fibreware, moulded and hardened under enormous hydraulic pressure and baked at extreme heat. These pails give you almost everlasting wear.

Eddy's Indurated Fibreware Fire Pails are made purposely with the rounded bottoms so that they cannot be hidden away like an ordinary pail, but have to be hung or stood in racks filled with water, where they are always on hand when wanted.



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HAVE YOU A HANDLING PROBLEM?



No. 304—TRUCK SHOVEL

This TRUCK SHOVEL is built on the lines of an ordinary truck. It carries 200 lbs. coal or ore at a trip, and 2½ bushels of grain. It is made of heavy gauge steel and has wide-tired wheels which ensure easy running.

One man can unload a car of coal in half a day with a Truck Shovel.

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WASHED COTTON WIPERS

Methods of New Zealand Agency

Interesting Letter Telling How Product of British Manufacturers is Handled in the Colony

The Commercial Intelligence Department of the Association directs attention to the following letter, which appeared, originally, in the *Weekly Bulletin*, issued by the Department of Trade and Commerce. The manager of the Department will be very glad to put interested manufacturers in touch with the writers of the letter, in case they may wish to enter into negotiations with them. The letter contained so much information of general interest, that we feel that members of the Association will appreciate its reproduction in this issue of INDUSTRIAL CANADA. It ran as follows:

"We have, for the past twenty-five years, been engaged in indent business, acting in the capacity of sole agents for a number of English, French and continental houses, carrying samples, where necessary, in our showrooms in Auckland, and obtaining business through the medium of our travellers, in all important centres throughout this colony, all orders obtained being passed through our London shipping house (for whom, also, we act as New Zealand agents), who collect from the manufacturers, make payment, and draw, by draft, for shipments direct to ourselves, charging a buying commission of 2½ per cent. on amount of invoice and c.i.f. charges; or where the drafts require to be drawn direct to our customers, and shipments made to the most convenient port, the commission is 5 per cent., in lieu of 2½ per cent. The additional 2½ per cent. is passed to our credit by our shippers, together with any profits in the way of agency commissions, or special discounts allowed by the manufacturers, as their representatives. Our London shippers collect these amounts and remit every six months.

"They also arrange agencies for us for New Zealand, and obtain samples, quotations and catalogues from any manufacturers whose goods they may think suitable for this colony, thereby benefiting by the increased turnover.

"Regarding the drafts drawn direct on our customers, on the 5 per cent. basis, in default of honor, we undertake to protect same.

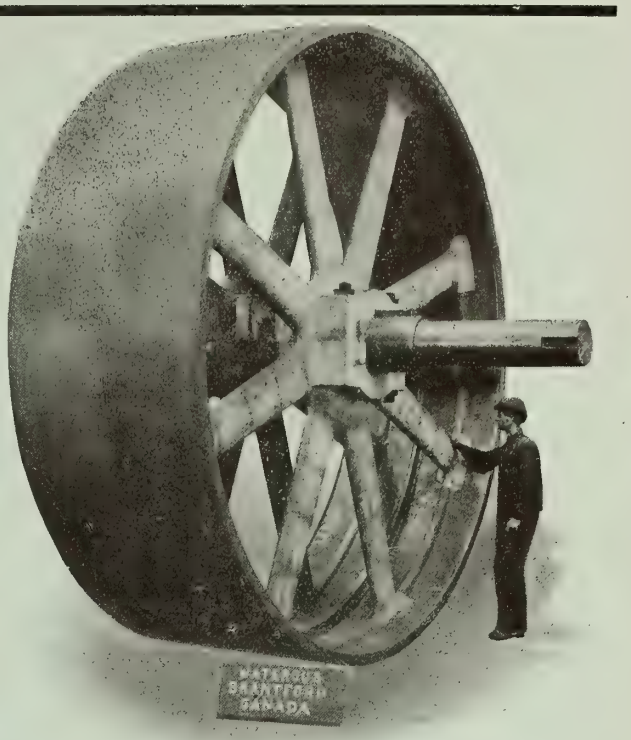
"Having outlined briefly our methods of doing business with our English connection, we are desirous of entering into a similar arrangement, if possible, with Canadians.

The following is, briefly, our agency arrangements, covering British manufacturers:

"The majority of business is done from samples, which range is supplied by the manufacturer, at a sample discount, to cover depreciation for exposure in showrooms, and constant handling, in the course of travel. Some firms, however, do not allow a sample discount, but supply a range of samples, free, factory price, we paying c.i.f. charges, duty and expenses at this end.

"We undertake to display these samples, in all the principal centres, throughout New Zealand, and at the end of each trip, or, when obsolete, to dispose of same to best advantage, remitting the proceeds, less the amount of c.i.f., and duty expenses, incurred by us, manufacturers allowing us an over riding, or agency, commission, on all business obtained through our efforts, or, in other words, on all goods supplied to New Zealand.

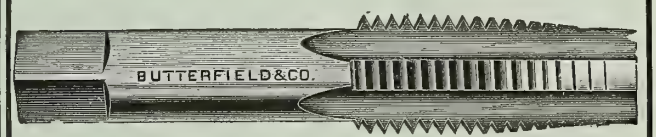
"The amount of the commission, where samples are carried, is 7½ per cent., or on commodities, where business can be obtained, with quotation, or cable quotation, from 2½ per cent. to 5 per cent., all costs of cables being borne by each party."



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That is why every file is mechanically perfect when it leaves our works.

And that's why it pays you to specify them when ordering.



Whale Canning Plant

One Will be Established by the Victoria Whaling Company on the Pacific Coast

The following interesting particulars relative to the establishment by the Victoria Whaling Co., Limited, of a whale canning plant at Kyuquot, B.C., have been supplied by the company to Hugh Dalton, Assistant Secretary, British Columbia Branch, C.M.A.:

"As you are, no doubt, aware, we have been marketing fresh whale meat, with great success, during the past season; but, we received so many requests for the canned article, that it was decided to erect a cannery. We have been carrying on experiments in canning for some months, and the product has met with universal approval, wherever shown. The meat is canned the same as salmon, with the exception of being par-boiled, before being placed in the can. In appearance, and taste, the meat is almost exactly similar to boiled beef.

"The plant, at Kyuquot, is to be a one-line cannery, and we expect to pack 40,000 cases, depending upon the run of whales. We are using sanitary cans, and the most modern and up-to-date machinery on the market. We are, also, erecting a new sanitary slip for butchering the whales. Our whale butchers and cannery employees will all be dressed in white, and every precaution is to be taken to insure a clean and wholesome product, which will be a credit to the Province.

"In connection with the cannery, we are erecting a modern cooling-room, 30 x 80 feet, and finished in white enamel, in which the meat will be cooled for eight hours, before being canned.

"We are not in a position to quote prices, at the present time, but the product will retail far below the price of any other meat, and should have a marked effect upon the present high cost of living.

"With the exception of a few special pieces, the machinery is to be purchased in Canada, and the total cost will be in the neighborhood of $25,000."

Big Contract Received

Wallace Shipyards at North Vancouver Receive Order for Four Steel Steamers

The Wallace Shipyards, at North Vancouver, B.C., have received orders for four steel steamers for the Government of Canada, and the machinery of the steamer now under construction, which will cost nearly $5,000,000. The Wallace yard is, therefore, the first yard in Canada to announce orders from the Dominion, under the new shipbuilding programme, whereby the Government of Canada will go into the shipowning business. The vessels to be built will be 5,100 tons each, and larger than the *War Dog*, launched from the Wallace yards May 17 last. The *War Dog* is 300 feet long, and has dead weight capacity of 4,700 tons, and she was the first big steel vessel to be built in British Columbia. A similar craft is now under construction at the Wallace yard.

To handle the Government orders, the Wallace yard will construct another set of building ways, and the announcement was received with general satisfaction, as the North Shore industry is the pioneer in steel shipbuilding. The yard makes its own engines for its vessels, and the machinery for the steamer, which is now under construction, is nearly completed.

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GALT ∴ ONTARIO

Wood Block Floors for Factory Buildings

Some of the Advantages Pointed Out

THE use of wood for structural purposes dates back to the earliest history of the human race. It is more widely available, easier worked and possesses certain very valuable qualities in better proportion than any other building material.

Like all vegetable substances timber is subject to decay, but the present development of the art of wood preservation has successfully overcome this defect through the perfection of a treatment by which all moisture necessary to the growth of destructive organisms is excluded.

Proof of the almost indefinite durability of wood when it is kept dry is furnished by an Egyptian coffin, now in the Metropolitan Museum of Art, New York. This coffin is credited with being nearly 4,000 years old, and the wood, although it shows no evidence of any special treatment, is in almost perfect preservation to-day.

How Classic Nations Preserved Wood.

The early Greeks and Romans endeavored to prevent decay by painting timber with essential oils. Another ancient method was by charring, which gave the wood a protective coat of charcoal that is not subject to attack by destructive fungi. We are also familiar with many instances of purely natural preservation through petrifaction, which is simply impregnation of the wood cells with a mineral solution that solidifies within them.

The modern method of injection of preservative compounds was first attempted about 200 years ago. The earliest patent for what is known as "Kyanizing" dates from 1832, and since that time much study has been given to various processes.

Such success has been met with in recent years that timber has not only been reinstated in favor for many structural purposes, from which it had been ousted by other materials that promised greater permanency, but many new uses have been found for it. One of the most important and highly satisfactory of these is in blocks for factory and industrial floors.

Creosoted Wood Blocks for Floors.

In Creosoted Wood Blocks there are to be found combined more of the essential requirements of a good general purpose, heavy service floor than any other kind of flooring material can show. Although the first cost of this wood block floor is higher than some other types, maintenance cost is almost negligible by comparison because of its great durability, while it makes many economies possible in plant operation.

Its resistance to wear is astonishing. Under the extremes of load and heavy traffic the ends of the wood fiber iron out smoothly to form a surface that grows stronger and more compact with use; a surface that is permanently level and does not abrade, crack, crumble, chip or corrugate. With all this it is the easiest floor to repair, should repairs be necessary. It is firm and hard enough to offer small rolling resistance, yet never becomes slippery or loses its resiliency. It absorbs vibrations; is a non-conductor of heat and cold; is compara-

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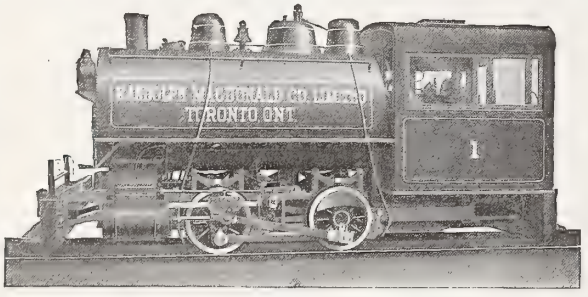
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Industrial locomotives face different conditions. They must work day after day in the hardest service, and often in localities where repairs cannot be made without great inconvenience. That is why we build our industrial locomotives from interchangeable stock parts. With this system every part must fit every other locomotive of the same size and design, and long delays waiting for duplicate parts is avoided. Interchangeable parts kept on hand at our Works for prompt shipment.

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DOMINION EXPRESS BUILDING, MONTREAL, CAN.

tively noiseless and does not originate dust. It is waterproof, decay-proof and vermin-proof.

It resists high temperature extraordinarily well and chars very slightly even when directly subjected to fire. When set on a concrete base a wood block floor is exceedingly difficult to burn. There have been instances in foundry operation of crucibles overturned and molten metal poured upon the blocks, which showed but little damage. In the fire which completely destroyed the P. & R. Pier No. 29 at Philadelphia, Pa., the structural steel was twisted and warped, and after the wreckage was cleared away the creosoted wood block floor was found to be damaged very little, suffering only a slight charring on the surface. These blocks were taken up, scraped and relaid, and are still giving excellent satisfaction—a practical illustration of their freedom from damage by fire.

A shop or factory floor with all these physical advantages must promote higher efficiency, both as regards employees and mechanical equipment. Being free from both cold and dampness, noiseless and easily kept clean, working conditions are improved. The absence of dust, and the distinctly antiseptic nature of the creosote preservative, are real factors in securing better health among workmen.

Owing to the particularly resilient nature of its surface, it is comfortable to work on and labor is spared much of the fatigue attributable to floors composed of harder materials. This characteristic of the Wood Block Floor also helps to keep tools from being blunted or castings broken that may be allowed to fall.

Conserves Machinery.

The absence of dust saves bearings and other delicate parts of expensive machines from injury.

Truck labor is greatly reduced, and also the accident hazard with a floor that is not broken, uneven or patched, and that never grows slippery.

The absorption of vibration is another valuable point in its favor, as it enables greater accuracy to be obtained in the operation of precision tools.

The use of these small units makes it a simple matter to take up any section of the floor to put down pipes, conduits or rails, or the foundations of heavy machinery, and to relay it quickly again without any alteration of the floor level. Light machinery can be lag-screwed directly to the blocks, perfect stability being insured by the strength of the binding. No dressing of any kind has to be applied to any Interior Wood Block Floor. It requires no treatment with hardening compounds or other protective measures. The surface improves with use. Interior Wood Block Floors can be laid on any story of a factory or mill building that will carry the proper base. Such an installation contributes very greatly to quiet, as the blocks take up the vibration of machinery and the rumble of truck wheels. Another advantage of this type of construction is found in the fact that these wood blocks may be used upon an old, wornout concrete floor, by filling up the holes and levelling it off. This provides a practically new floor at very small cost that will wear indefinitely.—*Manufacturers News.*

Water power from the Trent is turning the wheels of Kingston industries, and the streets, stores and dwellings of the city are lighted from the same source of electrical energy. The city's turbine and boilers, which produced electrical power from coal, are at present idle. They will be retained, however, so that in case of any accident the city's needs will be taken care of. The turbine will also be used to keep down the peak load.



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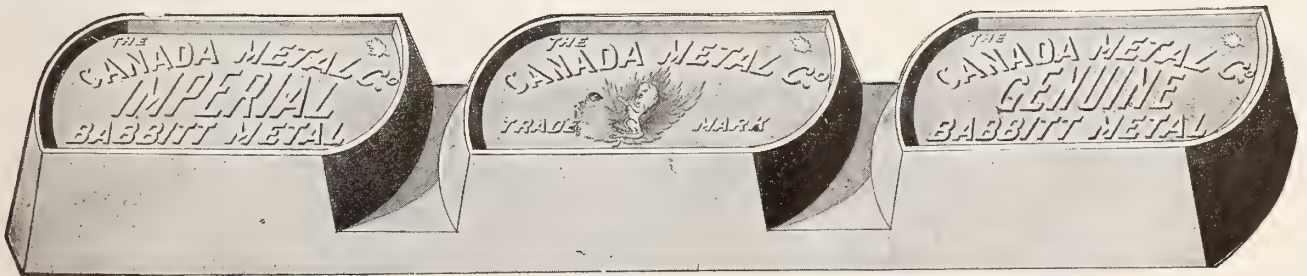
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The Ferry Service to P.E.I.

An Outline of the Difficulties Which Have Been Confronting Island Shippers and Consignees This Winter

(From the "Journal of Commerce")

It was hoped, with the inauguration of the car ferry service between Port Borden and Cape Tormentine, that the winter transportation problem, which has been causing our people much concern from year to year, would be in a large measure solved. This season, however, there have been many delays, and much freight congestion. The elements to some extent are to blame, and there are other causes. Upon the car ferry has been placed an unusually heavy burden. The early setting in of winter caused a withdrawal of the boats between Summerside and Point du Chene, and between Charlottetown and Pictou, leaving the car ferry route as the only means of communication and freight traffic, in other years distributed over three or four routes, was all centred in one.

At the time of writing, January 7th, there are about two hundred carloads of freight for the Island, held up somewhere between Tormentine and Moncton, including such essential commodities as hay and other cattle feed, coal and flour.

Hay to the Island.

The shortage in the hay crop has made this "carrying coals to Newcastle" business necessary, and about sixty carloads are now on the way. The Island does not produce enough flour for consumption, the season not permitting our wheat to mature to the necessary hardness, wherefore much flour has to be imported.

For years it has been customary to receive our coal by water, but the shortage of tonnage has increased the shipments by rail. Consequently, many carloads of coal have been ordered via the car ferry.

The farmer in this province, to a considerable extent, responded to the request, "increase your production," but, sad to say, the facilities for handling the increase were inadequate. It is estimated that fifty thousand dollars' worth of potatoes were lost in the recent cold snap, because the cars in which they were loaded were not warm enough. Even the lined cars, which the railway furnished by arrangement with the Food Control Department, were not, in every case, proof against "lower than zero" temperature. The great bulk of our potato crop is being moved by rail, and, of course, the car ferry has to take them across the strait. If frost-proof cars can be guaranteed, there should be steady shipments through the winter.

Perishable Products Delayed.

A considerable quantity of eggs, meats and other perishable products were held over until later than usual in the season, when the car ferry alone was left to transport them, and this steamer in consequence was filled to capacity every trip.

The standardizing of the gauge of the Prince Edward Island Railway will do a great deal towards preventing congestion in the future, but at present all freight to and from the Island has to be transferred at Port Borden. Unfortunately, from the middle of the last part of December, snowstorms interfered with the handling of freight on the Prince Edward Island Railway, the branch line between Port Borden and the main line at Emerald becoming blocked. To make matters worse, the rolling stock is in bad shape. The engines

L. W. MANCHEE,
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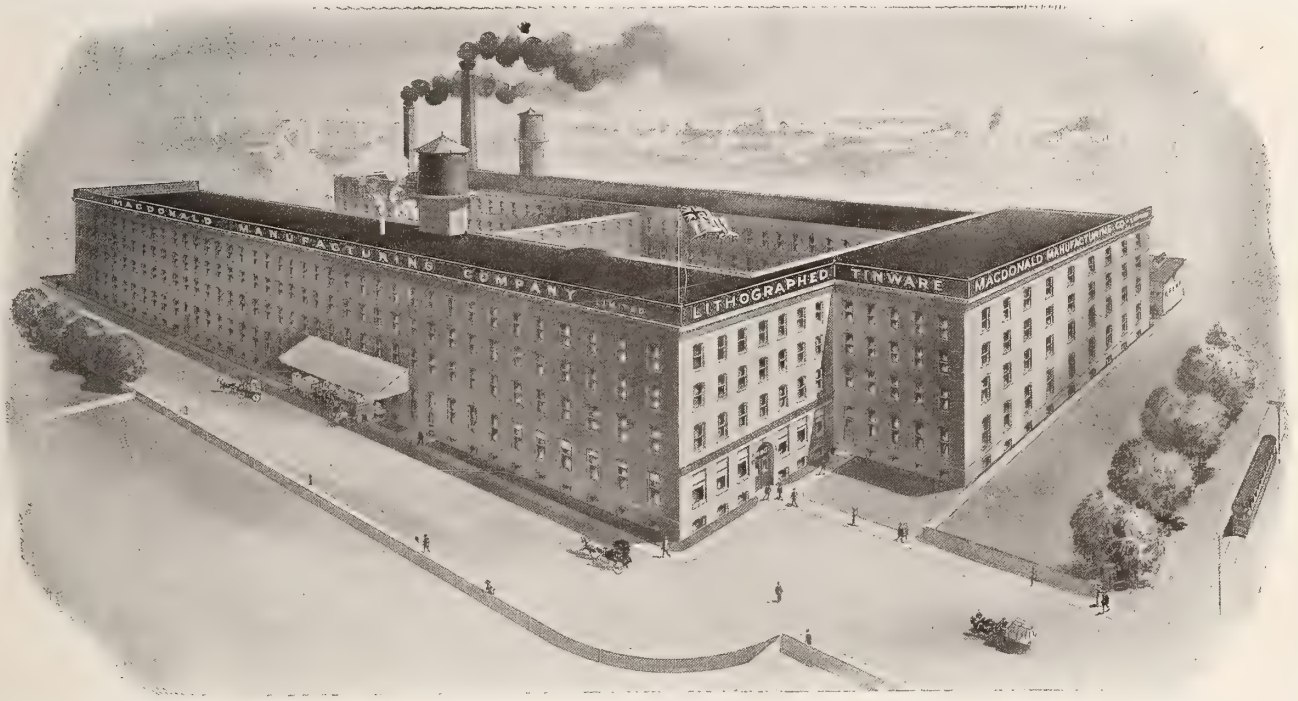
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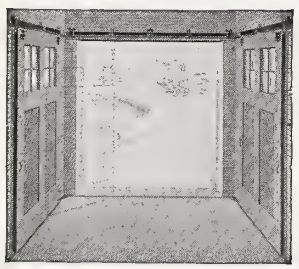
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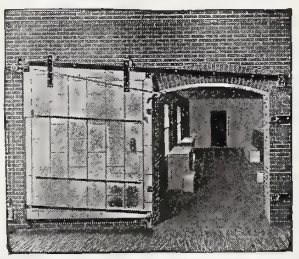
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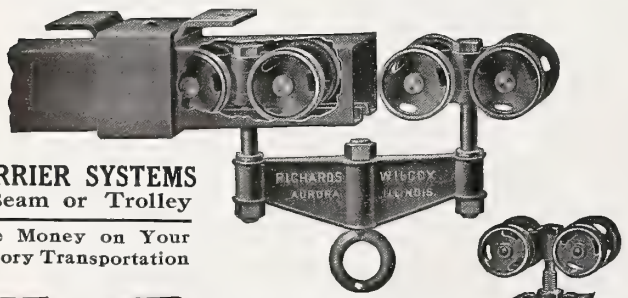
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for the most part are old, and their fireboxes are sadly in need of repair. It, therefore, does not take much of a snowstorm to hold up communication. The Government has promised the Island four new engines in April, but they are sadly needed just now.

Just when congestion was in a fair way of being lessened, the car ferry steamer was ordered to go to the relief of five lake steamers icebound in the River St. Lawrence. As it was represented that there were lives at stake, our people cheerfully submitted to the inevitable, as the car ferry was said to be the only steamer available. This steamer, however, had to remain at Tormentine for three days, taking in coal for herself, and for the steamers in distress. In the meantime, no freight could be moved. It is true the *Stanley* was put on between Pictou and Georgetown, but the easterly winds blocked Pictou with ice, and she was two days making the trip. Moreover, she carried no freight.

Just when the car ferry had completed coaling, the trip to the St. Lawrence was cancelled, as the steamers in distress were relieved by another boat, and, accordingly, the first-named boat resumed her work on the Tormentine-Borden route. She made return trips on Sunday, while the railway ran special freight trains all day to help relieve the congestion. With the continuance of the present mild weather and the absence of snowstorms, the freight blockade should be lifted in a reasonable time. The export and import trade of the province has reached such an extent, however, that two car ferries will be needed in the not distant future to handle the business.

According to recent announcement by the Minister of Public Works, a war time retrenchment policy is to be carried out, and therefore the widening of the railway gauge, although a most important and necessary work, will probably be deferred.

It would involve, according to General Manager Hayes, the rebuilding of a considerable part of the Island road, and much reballasting, in order to bear the weight of the heavier trains. Moreover, almost all the small bridges will have to be replaced and the curves straightened out. The Government, however, were pledged to carry out this work, and the Island people expect them to fulfill their pledge.

There has been much complaint from Island shippers about the facilities at Sackville, especially with regard to lack of accommodation for express goods, and consequent delays. A Charlottetown merchant, for instance, ordered a quantity of oranges for Christmas. They were shipped from Montreal on December 6th, and didn't reach here yet.

SHOULD WEAR STRAW HATS.

An engineer suggests, in a recent issue of *Safety First*, the wearing of straw hats with stiff brims, for those employed in and around electrical stations. It seems that the straw hat is far superior to a felt hat from the safety standpoint; for should the head come accidentally in contact with live wires, the rim of the hat or the crown prevents injury and gives the necessary warning. The same holds good when working around steam pipes. In a recent accident, where a man unconsciously came in contact with a 13,000-volt line, due to it being slightly above the line of vision, he would have been protected had he worn a straw instead of a felt hat. Some are apt to ridicule the suggestion of wearing straw hats in zero weather, but it is probable that the need for instruction among this class is very great. If a straw hat lessens the risk of losing one's head, it should be worn, regardless of ridicule.

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Report on Fire Waste

Some of the Conclusions Drawn by the Conservation Commission after an Investigation into Canada's Fire Waste

The results of an investigation into Canada's fire waste, carried out by the Commission of Conservation, and occupying more than a year, have been compiled in the form of a report, which will be issued at an early date. Sir Clifford Sifton summarizes the conclusions of the report as follows:

(1) Fire losses in Canada are chiefly due to (*a*) individual carelessness, (*b*) poor structural conditions, (*c*) arson. About 70 per cent. are believed to originate from the first cause.

(2) Fire losses can be materially reduced by attacking the problem at its source. Experience shows that by the enforcing of proper fire prevention and protection measures an immediate and enormous reduction in the fire loss can be made.

(3) It is clear that property owners in Canada are not sufficiently influenced by their own interests to use effective means, and compulsion must, therefore, be resorted to.

It has been shown that public efforts and propaganda without compulsion will not bring about any substantial improvement. Municipalities organize and maintain fire departments, and incur large expenditures for water supplies, but the results of these activities are disappointing. Fire waste not only continues, but increases. Existing conditions in Canada point to the need of legislation on the following lines:

(1) Proper planning and laying out of cities and towns with the object of restricting hazardous pursuits to certain delimited areas.

(2) Provision of adequate water supplies and fire-fighting facilities.

(3) Proper building requirements.

(4) Control of hazards and suppression of dangerous nuisances, close inspection and ruthless enforcement of regulations.

(5) A fire marshal law of the strictest character.

(6) Enforcement of personal liability, with heavy penalty where negligence is proven.

"It has been conclusively shown by the experience of England and other European countries," said Sir Clifford Sifton, "that proper measures of prevention have immediately beneficial effects, but in Canada we have not taken any such steps. Losses do not diminish. They increase. During the four years from 1912 to 1915, the average fire loss was $21,250,000 per annum. In 1916 the loss was $25,400,000. The 1916 figures will be exceeded during the present year. Fires are not gaining in frequency. The increased destruction is due to appreciation in values and to extensive fires.

"As an indication of the difference which exists in countries where proper precautions are taken, the total loss by fire in the whole of the United Kingdom, apart from fires caused by the enemy, amounted from August, 1914, to December, 1916, to $41,000,395. During the same period, losses in Canada, exclusive of forest fires, amounted to $52,027,000. These figures disclose a situation which calls for active and vigorous measures of prevention, and we shall continue to call attention to them until some steps are taken to apply a remedy."

George Brigden, of Brigden's, Limited, Toronto, was elected chairman recently of the Advisory Committee of the Board of Education. What makes the occasion unique is that it happens to be the first time that anyone not actually a member of the Board has been elected to this position.



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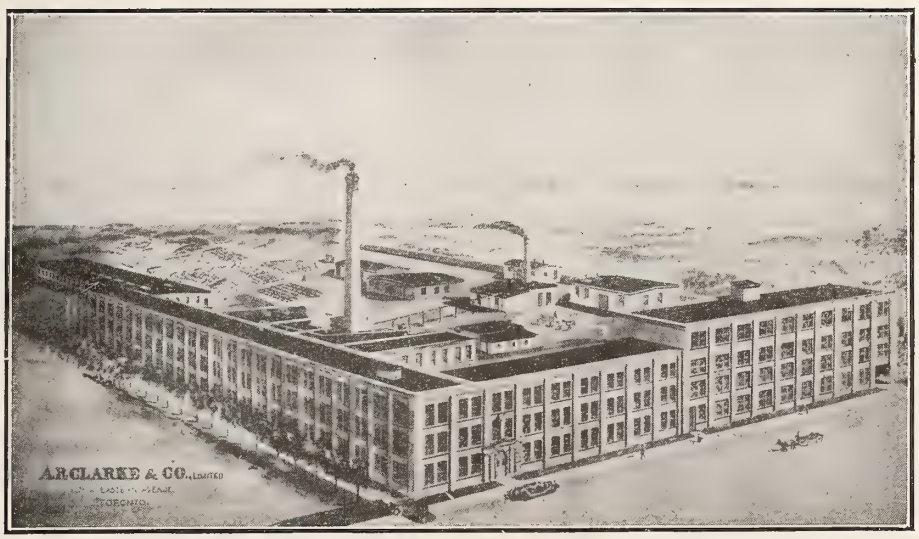
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The Handling of Ashes

How the Electric Mono-Rail Hoist May be Utilized in Solving this Awkward Problem

By JAMES MONROE

When up-to-date boiler-houses are designed, the problem of handling the ashes is always considered. When we recall that a few years ago, in most cases, the ashes were almost allowed to take care of themselves, it is evident that the

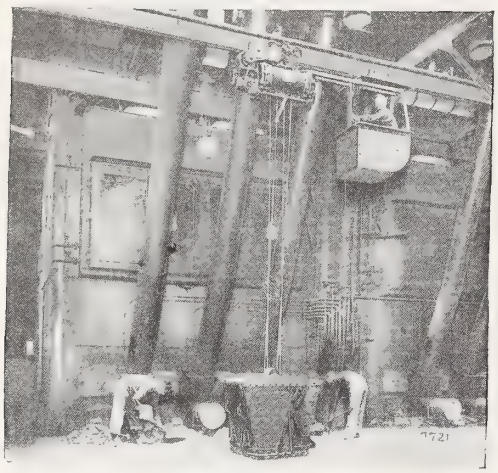


Illustration No. 1

designing of machinery to handle them in old boiler-houses is quite a proposition. It is one that should be viewed from a number of different angles.

The scheme, to be finally adopted, must, first and foremost, save labor; its first cost must be low, and maintenance low. No one cares to put very much money into an old boiler-house. Then a system should never entail a lot of changes in the old building, with the consequent expense.

A mono-rail electric hoist, with a bottom-dumping-bucket, is the type of machinery which lends itself readily to such installations. This is especially true where the ashes are pulled out on the boiler room floor, which is so often the case. The Philadelphia Paper Company, of Manayunk, Phila-

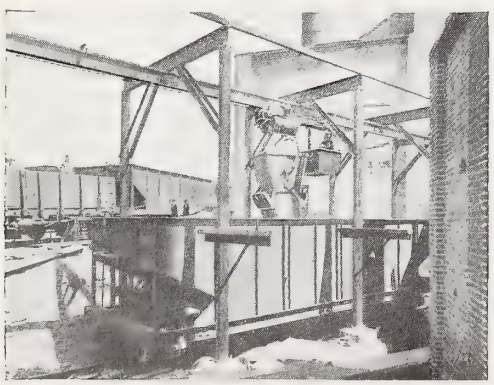


Illustration No. 2

delphia, have obtained excellent results with a link-belt mono-rail hoist of this type.

This machine runs on the lower flange of an I-beam track. It is operated by a man travelling in a trailer cage, who controls the raising or lowering of the bucket, as well as the travel of the hoist. Cut No. 1 shows the machine in the boiler-house, through which the track runs, and continues on out over a railroad siding (see cut No. 2).

The laborers who clean the fires, fill the bucket with ashes; the operator then hoists his bucket, and runs it out directly over the car, where he dumps it, by the motion of a lever in the cage. The current required is very small. Compare this method with that of wheeling ashes, and note the saving in time and labor.

In this instance, the superintendent designed his own track supports, the Link-Belt Company, of Nicetown, Philadelphia, Pa., furnishing the track and conductors. It is evident that, while he did the work quite cheaply, he also made a thoroughly good job of it.

About thirty tons of ashes are handled daily. They are pulled out every six hours. Two men do the work of shovelling into the bucket, and then often one of them gets into the cage and runs it out over the car; at other times, to hurry the work, an additional man operates the hoist, remaining in the cage. The bucket holds 1¼ cubic yards, and is handled by a two-ton hoist.

This machine is very compact and requires little headroom—a most important consideration in an installation of this kind, where it is necessary to get a large bucket over the side of a high-side gondola car. All the gears operate in oil, and are entirely enclosed in housings—any other type of machine would not be suitable for handling ashes.

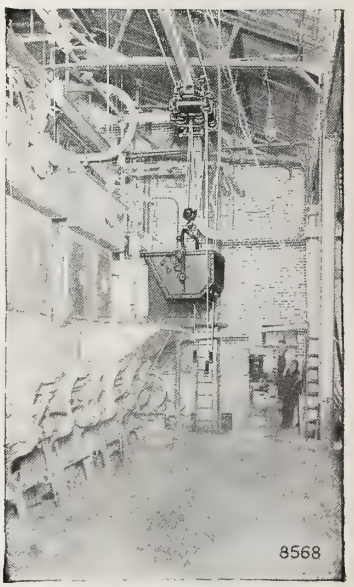


Illustration No. 3

In this plant a most satisfactory steel suspension bunker supplies coal to the stokers. In many instances, however, an overhead bin cannot be installed for lack of space. It may then be practicable to use the same mono-rail hoist system to handle the coal as well as the ashes. Cut No. 3 shows a tippling bucket about to discharge coal into a stoker hopper. Better even than this, a bucket with a small chute and under-cut grate is often used.

This problem of handling ashes mechanically is daily becoming more urgent. Many boiler-rooms are now running twenty-four hours a day, where two years ago they were running ten; hence, over twice the ashes to handle, and with labor so scarce. Many plants have put in stokers and forced-draft system, to increase their capacity, often neglecting to provide for the handling of the ashes, when the remodelling is done. The electric hoist fills a long-felt want in this field.

NEW SHIPBUILDING COMPANY.

The R. H. Howes Construction Company, of Boston and New York, are commencing shipbuilding operations in Nova Scotia, having leased the late James Cosman shipyards, at the mouth of the Meteghan River. Mills and pattern shops have also been erected, and are now in operation. The company recently closed a deal for a tract of 500 acres of valuable timber land on the Meteghan River, and a large gang of men is now engaged on the property, getting out shipframing and timber.

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A Plea for Daylight Saving

Should be no Failure This Year in Putting Into Force a Conservation Measure Which is of Great Economic Advantage

(Halifax "Chronicle")

The question of adopting summer time on this continent —excepting for the present Mexico, where revolutions monopolize all the time—is again up for consideration. It is being insistently discussed in the United States, and is receiving increasing consideration in Canada. The season for its adoption and enforcement is at hand, if public decision should be in its favor, as there is every prospect of its being. It would become our representatives in Parliament to give it their attention without delay. A bill providing for its adoption last year was introduced by Sir George Foster, and fond hopes were entertained that he might be in earnest about having it passed. But that gallant knight funked or got "cold feet," or one or other of the various ailments to which some politicians are liable, and the measure perished for lack of official support.

There must be no such failure this year, and action should be prompt to be effective. Parliament is not likely to meet much before the time when the decision of this question will be necessary if the plan is to go into successful operation for the coming summer. It seems as good as certain that the United States will hesitate no longer. The President is said to be prepared to recommend the adoption of summer time to Congress. If he does, it will assuredly become law. The people were ready for it last year. It was the American politicians, too, who hesitated and delayed. If it is adopted in the United States, Canada must follow suit. The business connections between the two countries are too extensive, and too intimate, to admit of any material difference in their timekeeping. Our railways cross and intercross. Our banking and business concerns everywhere clasp hands. Our stock exchanges must open and close their doors at the same hour. Otherwise, there would be endless confusion and annoyance to all concerned, and nearly everybody would be concerned.

Merits Have Been Proved.

In Canada, the daylight saving plan has already been tried with so much satisfaction in so many different localities that it may be said to have well passed the experimental stage. Its solid and varied merits have been proved. Its disadvantages, even when only locally applied, have been found trifling, and are apparent only to the very few. But it has been tested and approved on the greatest of scales everywhere. It was put into operation in various parts of Europe in the spring of 1915. It has been adopted by the United Kingdom, France, Italy, Germany, Austria, Denmark, Holland and Sweden. It is in force also in Australia. No country which adopted has yet abandoned it, or manifested any desire to do so. It is no longer regarded as a war-time measure, but as a permanent part of the social economy of each of the countries named. They have one and all found it so advantageous in every respect that they are bent on perpetuating it.

And why not? It not only saves artificial light and fuel to a most important extent, but permits more adequate enjoyment of the annual visit of the sun to these northern latitudes in summer, and to southern latitudes in winter. It is merely a practical correction of the purely conventional and stupid modern prejudice in favor of a piece of mechanism called a clock, and against the great natural timekeeper of our planetary system. Why man should prefer to be guided

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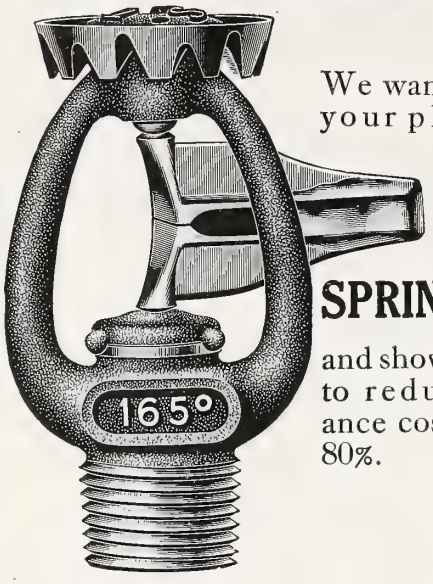
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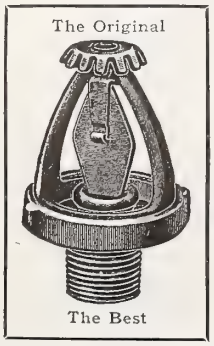
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by a clock rather than by the sun, it is difficult to imagine. He is the only living creature with such an unnatural preference. A clock is right, or tells the correct time throughout the year, only at the equator. North or south of the equator, the clock is correct at each parallel of latitude but twice a year. The rest of the year, men have been going astray with the clock instead of right with the sun, as do all beasts and birds and insects, ever since the clock was invented; and that, after all, is not so very long ago.

We call it rising-time in summer when the sun has already been long in the sky. We still call it rising-time in winter when the sun will not appear for hours. But the incongruity is not so obvious in winter, when, in spite of our clocks, we have full advantage of whatever sunlight there is. In summer, it is glaringly apparent when, by following the clock, we are deprived of the best hours of sunlight in the day.

Summer time is merely a plan to give ourselves the benefit of one of those wasted hours. By setting our clocks one hour ahead in spring, and one hour back at the beginning of autumn, we are enabled, without consciousness of any change, to hold as usual with the clock, while living an hour longer each day with the sun, and enjoying all his life-giving, life-saving and economic benefits. That there should be hesitancy about seizing the advantages of such a palpably profitable scheme passes ordinary comprehension. It is to be hoped that the merits of the scheme will not again pass the comprehension of our elected representatives, and that a bill providing for its enactment will be ready for presentation, under administrative auspices, as soon as Parliament assembles.

THE PRAYER OF THE NATION.

God give us men! A time like this demands
Strong minds, great hearts, true faith and ready hands.
Men whom the lust of office does not kill;
Men whom the spoils of office cannot buy;
Men who possess opinions, and a will;
Men who have honor, and who will not lie.
Tall men, sun-crowned, who live above the fog
In public duty, and in private thinking.

—J. G. Holland.

A MAN'S PRAYER.

"Teach me that sixty minutes make an hour, sixteen ounces one pound, one hundred cents one dollar.

"Help me to live so that I can lie down at night with a clear conscience, without a gun under my pillow, and unhaunted by the faces of those to whom I have brought pain.

"Grant, I beseech Thee, that I may earn my meal ticket on the square, and in doing so may not stick the gaff where it does not belong.

"Blind me to the faults of the other fellow, but reveal to me my own.

"Guide me so that each night when I look across the dinner table at my wife, who has been a blessing to me, I will have nothing to conceal.

"Keep me young enough to laugh with my children and to lose myself in their play.

"And then, when comes the smell of flowers and the tread of soft steps and the crushing of the hearse's wheels in the gravel out in front of my place, make the ceremony short and epitaph simple,

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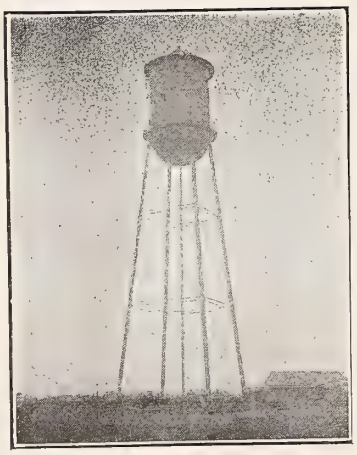
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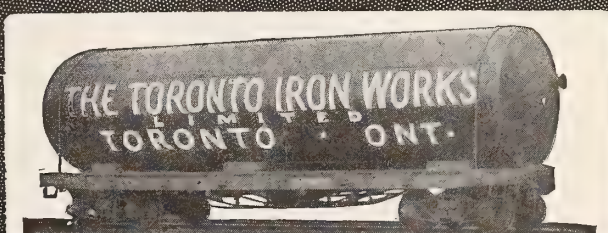
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The large, three-masted schooner, *Charles A. Ritcey*, which was built by the E. L. Comeau Shipbuilding Co., at Meteghan, Digby County, for Capt. C. D. Ritcey and others, of Lunenburg, was launched last month.

The *Charles A. Ritcey* is most thoroughly built and equipped in every particular, and makes an excellent specimen of Nova Scotia marine architecture. She is 121 feet on the keel, 147 feet over all, 32.8 feet beam, 12-foot hold, and is 359 tons net. Her three spars are of Oregon pine; the fore and mainmasts are 81 feet in length, while the mizzen in 82 feet. The topmasts and jibboom will be of native spruce. In the forward part of the forecastle is a large engine-room, containing a nine-h.p. United gasoline hoisting engine, so fitted and equipped that it will not be necessary for the crew to handle a rope, halyard or anchor. It also has an attachment whereby it will pump the vessel if ever an accident should happen that would cause a leak. In addition, there is a smaller pump, to be used for washing down and other purposes.

Another system which is a decided innovation is the Delco Electric System for lighting purposes. The schooner has been thoroughly wired, and is now lighted with twenty-six 25-watt lights, while the generator is large enough for many more. The crew's quarters, and the galley, which are also part of the forecastle, are large, roomy and commodious, and afford every possible convenience for the steward's work and the men.

Her accommodations aft for the captain, first and second officers and steward, are superb, and nothing has been spared to make them convenient and attractive. The captain's rooms are elegantly furnished in yellow birch and hard pine, handsomely polished, so that the grain of the wood is beautifully shown. Immediately off these rooms, on the port side, is a modern bath, with tub, basin and toilet, all fitted with the very latest ship's plumbing. Between this room and that of the first officer is a large chart room, containing a large table and built in chest of drawers. Solid oak stairways, which are finished quite in keeping with the cabins, lead to the main deck.

WOOD WORKING COURSE EXPANDED.

Montreal Technical School Gives Additional Space for this Purpose and New Machinery is Installed.

The Military Hospitals Commission announces that, through the courtesy of the directors of the Montreal Technical School, additional space has been allotted in their spacious and beautiful building on Church Street, for the installation of wood-working machinery as an adjunct to the carpenter shops. There are now being installed bandsaws, turning lathes, drills, etc., all to be operated by electric power. Since the inception of the vocational work, the directors have placed every facility of the school at the disposal of the department, now occupying ten classrooms and a motor garage.

Through the courtesy of the United Machinery Company there has also been installed an eighteen-foot Goodyear shoe-repairing outfit. This is a most necessary and desirable acquisition to the shoe-repairing classes. It is under the direction of an instructor secured from the London Trades Guild, of London, England, who has had a wide experience with some of the best London and Canadian shoe manufacturers.

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Vancouver's New Industrial Centre

Great Activity Reported in This Section with Several New Plants Coming Into Operation

(From the "Contract Record")

Vancouver's latest industrial centre—Granville Island—is teeming with activity nowadays. On this island, in the heart of the city, already are situated the plants of the Vulcan Iron Works, the Wallace Foundry Company, Ltd., the Pacific White Lead Company, Ltd., the Schaake Machine Company, Ltd., the British Columbia Equipment Company, and the Pacific Dredging Company. Practically all the lots are taken up, and many new industries plan to establish plants during the coming year.

The Vulcan Iron Works, whose plant was completed a few months ago, is already working to full capacity. The shop has an area of 220 ft. by 105 ft., and is designed to handle the heaviest and largest boiler and pipe work. It is of post and beam construction, on pile foundation. All the machinery is on piles. The plant is equipped with four travelling cranes, and has all the latest and most modern machinery installed. It is considered the most up-to-date (although not the largest), boiler and pipe plant on the Pacific Coast. Gardiner & Mercer, of Vancouver, were the architects, while Hodgson & King were the general contractors, and C. H. E. Williams the electrical contractor.

Shipbuilding Results in Activity.

The building of the Wallace Foundry Company is designed as an iron and brass foundry, erected chiefly to look after the large ship and machinery orders, which have re-

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sulted from Vancouver's growing shipbuilding industry. The building was designed by Gardiner & Mercer, and is the largest and most up-to-date foundry west of Winnipeg. The building has a ground area of 200 x 74 ft., exclusive of the pattern-shop and offices, which are housed in a separate building. It is of post and beam construction, and equipped to handle the largest marine castings. It has three large casting pits, ranging from 10 x 10 ft. to 16 x 16 ft., and has three large coke ovens installed. Two cupolas—one three-ton and the other five-ton—are part of the equipment which handles the steel work. The plant has excellent railway and motor facilities, a railway spur coming into the yard close to the cupola loading platform. This plant is also working to capacity, but experiences difficulty in securing competent moulders. Contractors for this plant were Hodgson & King, with Mundy & Rowland contracting for the electrical equipment.

The Pacific White Lead Company have erected on Granville Island a new white lead corroding plant, which they found necessary to meet their increasing export trade. This plant is housed in a building 150 x 75 feet, built of interlocking tile construction, cement rendered on the outside. The floors are also concrete and the roof designed on the Howe-truss principle, so as to retain warmth in the building. Architects, Gardiner & Mercer; general contractors, Hodgson & King; electrical contractors, Cope & Son.

The plant of the Schaake Machine Company, Ltd., which is still in course of erection, is of the post and beam construction, of wood frame. It is designed as a machine shop, and has a floor area of 160 x 65 feet.

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Buyers' Guide to Canadian Manufactures

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVE MATERIALS
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.

ABRASIVES
*D. A. Brebner, Ltd., Toronto.

ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.

ACETYLENE BURNERS
*The Prest-O-Lite Company.

ACETYLENE GAS
*The Prest-O-Lite Company.

ACETYLENE GAS BURNERS
Economiq Acetylene Burner Co., Toronto.

ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.

ADVERTISING NOVELTIES
Lawson & Jones, Ltd., London, Ont.

AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.

AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.

ALE
E. L. Drewry, Winnipeg, Man.

ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*The Steel Company of Canada, Limited, Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BEER
E. L. Drewry, Winnipeg, Man.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal. Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS
*The National Acme Mfg Co., Montreal., Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

*For Display Advertisement see Index, Pages 1425-1426



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BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS GOODS
*United Brass & Lead Ltd., Toronto.

BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.

BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.

BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.

BUCKET TANKS
*The General Fire Equipment Co., Limited, Toronto, Ont.

BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.

BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company. Toronto and Montreal.

BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.

CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.

CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.

CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.

CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.

CAMERAS
Canadian Kodak Co., Limited, Toronto.

CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.

CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.

CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.

CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.

CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.

CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto.

CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto.

CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd.

CARBONS, flame
Canadian Carbon Co., Limited, Toronto.

CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.

CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited,

CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.

CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.

CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.

CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.

CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.

CARTONS, lithographed
Harris Lithographing Co., Toronto.

CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, grey iron
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

CASTINGS, malleable iron
*Galt Malleable Iron Co., Ltd., Galt, Ont.

CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.

CATALOGUE MAKERS
Grip, Ltd., Toronto.

CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.

CELLBOARD
Adams Cellboard Co., Toronto, Ont

CEMENT GUNS
Steel and Radiation, Ltd., Toronto.

CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.

CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.

CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.

CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.

CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.

CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited, Toronto.

CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.

CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.

CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.

CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.

CLOCKS, TIME
*International Business Machines, Limited, Toronto.

CLOCKS, WATCHMEN'S
*The General Fire Equipment Co., Limited, Toronto.

CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.

CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.

CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.

CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.

CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.

CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.

CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.

COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.

COFFEE
S. H. Ewing & Sons, Montreal, Que.

COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.

COLLARS
The Standard Shirt Co., Limited, Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.

CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.

CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
*Canadian Allis-Chalmers, Limited, Toronto.

CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.

COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

For Display Advertisement see Index, Pages 1425-1426

COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DENIMS
Hamilton Cotton Co., Hamilton, Ont.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DIES
*John Whitfield Co., Toronto.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.
ELECTROTYPING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.
ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.
ENGRAVING
*J L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa, Limited. Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.
EXCELSIOR
*Delany & Pettit, Ltd., Toronto.
EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal, Que.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited, Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.
FILING CABINETS
*Office Specialty Co., Newmarket, Ont.
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

*For Display Advertisement see Index, Pages 1425-1426

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited, Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FLAGS
*Scythes & Co., Limited, Toronto.
FLASHLIGHTS
Canadian Carbon Co., Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peck & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, hot air
Bedford Stove Co., Bedford, Que.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.
GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.
GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUAGES
*John Whitfield Co., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Ont
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.
INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont.
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.

*For Display Advertisement see Index, Pages 1425-1426

IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.
IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAGER
E. L. Drewry, Winnipeg, Man.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock sole
The Breithaupt Leather Co., Ltd., Berlin, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
MACHINE TOOLS
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car shop
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, tannery
W. P. Plant, Hastings, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILING
*The Pedlar People Limited, Oshawa.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People Limited, Oshawa.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

*For Display Advertisement see Index, Pages 1425-1426

NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NICKEL OXIDE
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.

PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co,, Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES, black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.

PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
PRESSES, veneer
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited, Toronto.

*For Display Advertisement see Index, Pages 1425-1426

*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.

PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Gould-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.

PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.

PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.

RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.

RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.

RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.

RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.

RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.

RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.

REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.

"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.

REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.

REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.

REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.

REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.

REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.

REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.

REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.

RINGS, gold
Caron Bros., Montreal, Que.

RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.

RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.

ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.

ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.

RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.

RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.

RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.

SALT
Canadian Salt Co., Ltd., Windsor, Ont.

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, crosscut and band
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.

SCALES
The Gurney Scale Co., Hamilton, Ont.

SCALES, counter
The Gurney Scale Co., Hamilton, Ont.

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.

SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.

SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited, Toronto.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.
SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.
SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.
STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.
STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.
STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.
STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STAMP MILLS
*Jenckes Machine Co., Sherbrooke.
STATIONERY, office
Harris Lithographing Co., Toronto.
STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.
STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.
STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.
STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.
STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.
STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.
STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
STEEL PLATE WORK
*Toronto Iron Works, Ltd., Toronto.
STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.
STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
STEEL SHELVING
*Dennis Wire & Iron Works Co., London.
STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.
STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
STEREOTYPING
Central Press Agency, Toronto
STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
STONE
The Hagersville Contracting Co., Hagersville, Ont.
STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.
STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.
STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.
STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.
STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.
STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.
STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.
SURFACERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.
TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.
TANKS, steel storage
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.
TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.
TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.
TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.
TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.
TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.
TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TIME RECORDERS
*International Business Machines, Limited, Toronto.
TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton, Ont.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
The Gurney Scale Co., Hamilton, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal, Que.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte, Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto, Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, regrinding globe, angle, cross checks, swing checks.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
WAGONS
TudhopeAnderson Co., Ltd., Orillia.
WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.
WASHERS
*The Steel Company of Canada, Limited. Hamilton.
WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

*For Display Advertisement see Index, Pages 1425-1426

WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John McDougall Caledonian Iron Works Co., Ltd., Montreal Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.

WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHISKY
*Hiram Walker & Sons, Ltd., of Canada, Ltd., Hamilton, Ont. Walkerville, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Company of Canada, Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Pages 1425-1426

ARE YOUR STEAM PIPES INSULATED?

IF NOT YOU ARE BURNING MONEY

A GOOD COVERING pays for itself in one Season, and is a revenue producer indefinitely. The Best is the Cheapest **WE HAVE IT**

EUREKA MINERAL WOOL & ASBESTOS COMPANY

118 ADELAIDE STREET WEST, TORONTO, ONTARIO

TRY US FOR

NICKEL PLATING

THE BOOTH-COULTER COPPER & BRASS COMPANY, LTD.

115-121 SUMACH STREET - - - TORONTO, CANADA

Cable Address, "Therson," Toronto Telephone Main 2862

THOMSON, TILLEY & JOHNSTON

BARRISTERS, SOLICITORS, etc.

D. E. THOMSON, K.C. STRACHAN JOHNSTON, K.C. W. N. TILLEY, K.C.
ARTHUR J. THOMSON R. H. PARMENTER

SOLICITORS FOR THE CANADIAN MANUFACTURERS' ASSOCIATION

Offices—Toronto General Trusts Building
85 Bay Street

TORONTO
Canada

Vol. XVIII., No. 11 TORONTO, MARCH, 1918 $2.00 per Year

INDUSTRIAL CANADA

THERE is an advertisement of the Dodge Manufacturing Company in this issue. Read it. It tells a story full of human interest. It is one of a series of advertisements now appearing in important daily newspapers.

* * * * * *

It is a privilege to be associated with the Dodge Manufacturing Company in the preparation and placing of their advertising, for they have rare courage and vision in the planning of their publicity.

We are well equipped to serve one or two other manufacturers, of equal vision and advertising courage.

J. J. GIBBONS, LIMITED

Advertising Agents

MONTREAL TORONTO WINNIPEG

PUBLISHED BY THE CANADIAN MANUFACTURERS ASSOCIATION INCORPORATED.
HEAD OFFICE TORONTO · BRANCH OFFICES, MONTREAL, HAMILTON, WINNIPEG, VANCOUVER, HALIFAX, QUEBEC.

FOR POLISHING USE CORALOX

(AN ELECTRIC FURNACE CORUNDUM)

Ask us for Free Trial Sample — Made in Canada

D. A. BREBNER LIMITED, HAMILTON, ONT.

AUTOMOBILE PARTS
DROP FORGINGS

F&SCo. Quality & Service

SHEET METAL WORK
GENERAL STAMPINGS

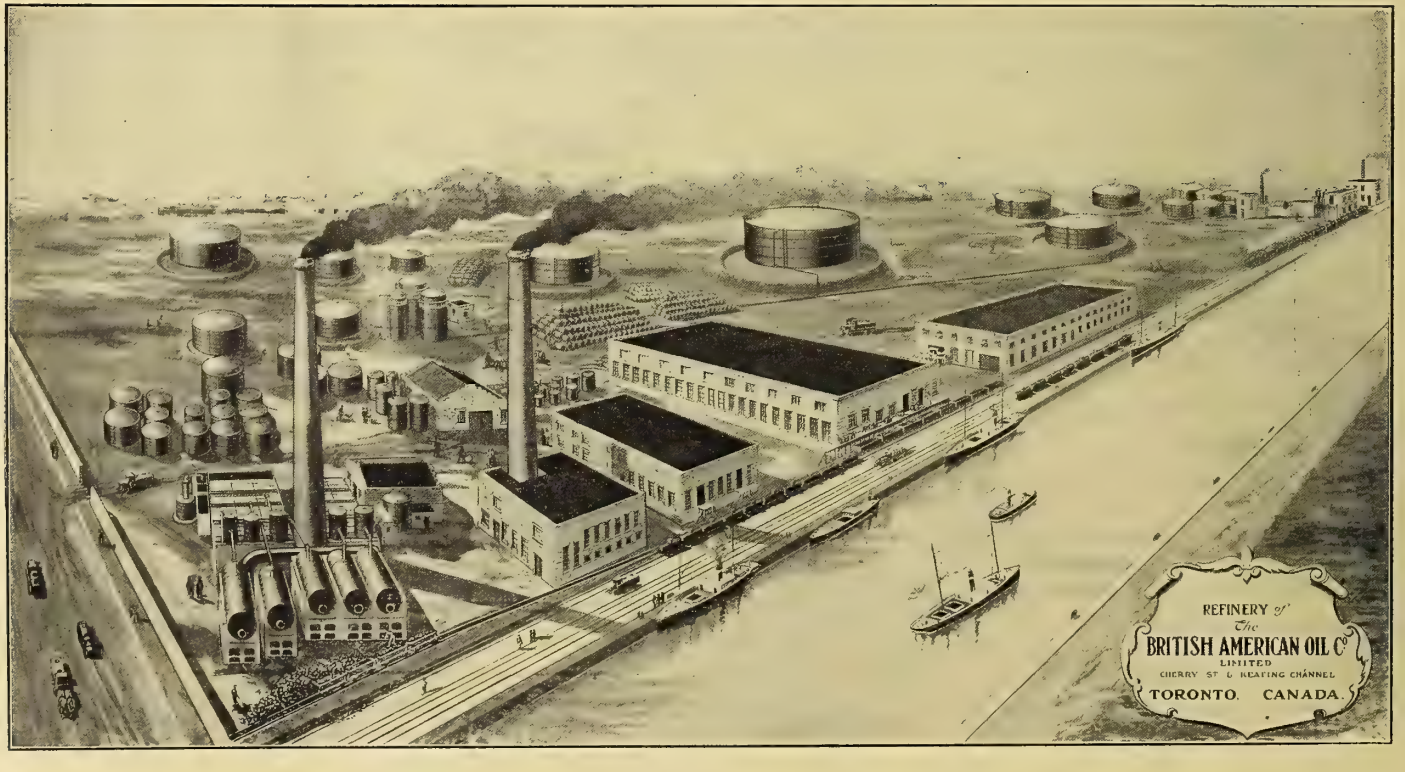
We have erected and are now operating

THE LARGEST COMMERCIAL DROP FORGE PLANT IN CANADA

We are equipped to handle large forging contracts.
This expansion also increases our stamping facilities.
We stand by our Motto: Quality and Service.

DOMINION FORGE & STAMPING CO., LIMITED
Walkerville - Ontario

THE BRITISH AMERICAN OIL CO., LIMITED



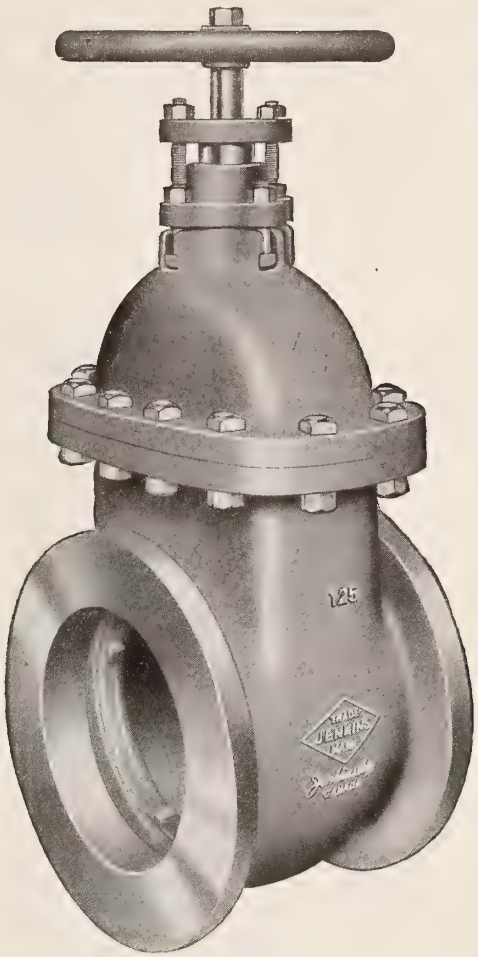
Head Office: ROYAL BANK BUILDING, TORONTO — Branches: Montreal, Ottawa, London, Windsor, Etc.

A World-Wide Reputation for Quality and Service Stands Behind the

TYPE "K" GATE VALVE

TRADE JENKINS MARK

Jenkins Bros



TRADE JENKINS MARK

Jenkins Bros

Fig. 402
TYPE "K"

IRON BODY INSIDE SCREW GATE VALVE FLANGED

Type "K" Gate Valves are made in Brass and Iron Body, screwed and flanged. None genuine without the "Diamond" Trade-Mark.

Catalogue No. 8 sent free on request.

Sole manufacturers:

JENKINS BROS.
LIMITED

Head Office and Works:
103 St. Remi St.
MONTREAL, CANADA

Agencies in All the Principal Countries of the World

European Branch:
95 Queen Victoria St.
LONDON, E.C. 4, ENGLAND



FINISHED BRIGHT
FOR
ELECTRO PLATING
DEEP DRAWING QUALITY
ACCURATE GAUGE AND WIDTH
WE SOLICIT YOUR ENQUIRIES

MANUFACTURED BY
STANLEY STEEL CO., LTD.
Hamilton, Canada

Mackinnon, Holmes & Co., Limited
Mackinnon Steel Co., Limited
Sherbrooke, Quebec, Canada

Fabricators and Erectors of

Structural Steel and Steel Plate Work

of every description

Buildings, Bridges, Penstocks,
Towers, Tanks, Roof Trusses,
Columns

Our engineering staff is always at your service.
If you have a problem--let us help you solve it.



SERVICE

That is not idle words.

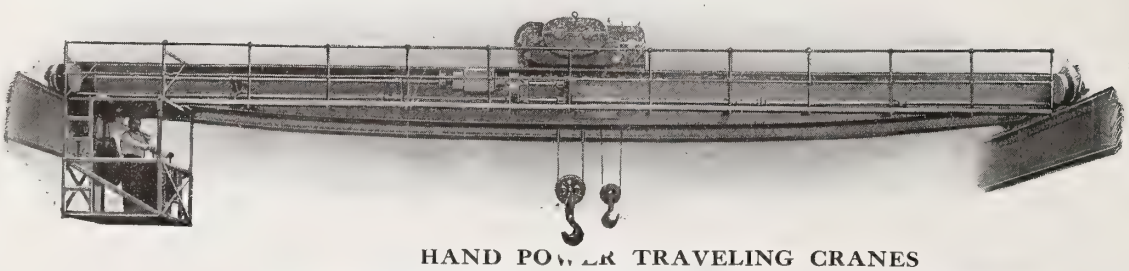
QUALITY

That is second to none.

*This is all we have to offer—
could we offer more?*

VICTOR SAW WORKS, Ltd.
HAMILTON - ONTARIO

"CRANES MADE IN CANADA"



Electric Traveling Cranes

HAND POWER TRAVELING CRANES
ELECTRIC HOISTS, AIR HOISTS, FOUNDRY EQUIPMENT

Northern Crane Works, Limited - - - - Walkerville, Ontario

Seventeen years after---

In 1900 the Quaker Oats Company commenced building a magnificent milling plant at Peterboro', Ontario.

Among other problems at that time not their least important was that of securing efficient Power Transmission Machinery.

It was desirable to secure this machinery in Canada, but there was considerable doubt in their minds as to whether any Canadian manufacturer had the plant and facilities to fulfill so large a contract on time.

We knew that we had both plant and facilities, and we told them so.

Whereupon Mr. Karn, their General Superintendent of Construction, came from Chicago to visit our works and verify our claims.

He made a most minute examination of our patterns, our processes and our plant; and as a result expressed himself as thoroughly confident of our ability to handle the contract.

A few days thereafter we received the entire order for their Power Transmission Equipment.

* * *

In 1917 fire completely destroyed that plant.

* * *

What happened?

Once again Mr. Karn came to see us, not to investigate our plant and facilities, but to ask us how "orders ahead" stood, and to inquire if he would be safe in placing an immediate order for ten or twelve carloads of Transmission Equipment.

We said "Yes."

After a few minutes Mr. Karn replied "Go ahead."

Not a price was mentioned, an honor of which we are not unmindful; and orders have been coming thick and fast from them ever since.

We are proud of this transaction, for it gives us the feeling that our endeavor to serve customers faithfully and well, at all costs, has been recognized, and that sometimes our policy bears fruit a hundredfold.

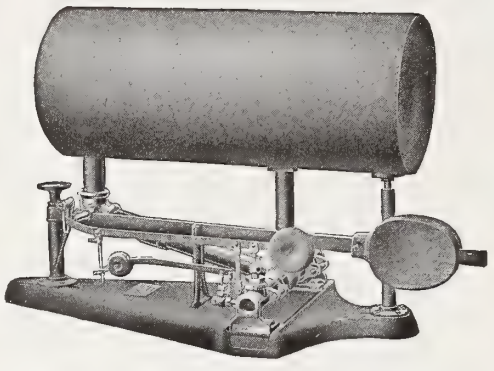
DODGE

Manufacturing Co., Limited

TORONTO : : ONTARIO

CANADA'S LARGEST BUILDERS OF TRANSMISSION MACHINERY

Morehead
Back to Boiler
SYSTEM



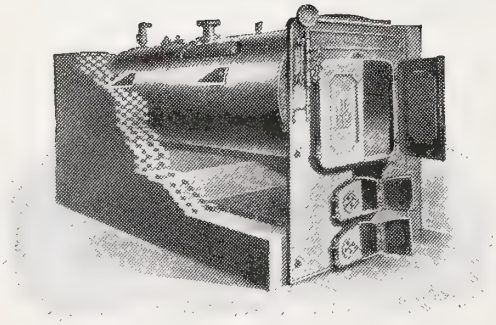
IT is a demonstrated fact that the Morehead "Back to Boiler" System for returning condensation from steam lines to the boiler is faultless. The operation, as performed by the Morehead "Back to Boiler" System, is automatic. There is no waste. Every ounce of condensation is returned. The operation is cheaper than can be accomplished with a pump, and the condensation is from 100 to 150 degrees hotter. It is easy to see what this means in fuel saving. Figure it out! It's well worth your while to get all the information about the Morehead System. Write us if you are interested.

CANADIAN MOREHEAD MFG. COMPANY

DEPT. "K" WOODSTOCK, ONTARIO

E. Leonard & Sons, Limited

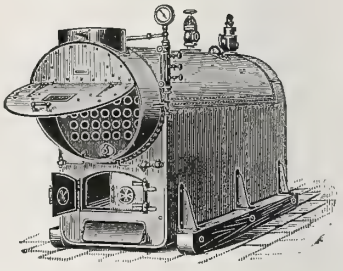
LONDON . . ONTARIO

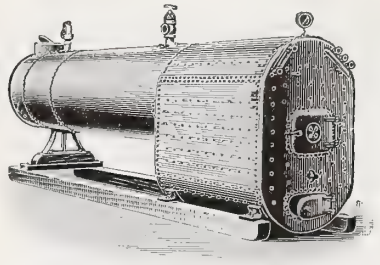


Manufacturers of

BOILERS
ENGINES

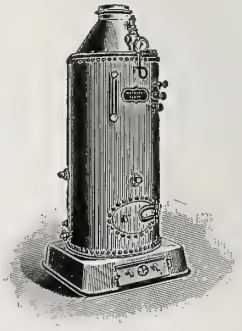
of all types and sizes





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Box 1315, Calgary, Alta.
62 Water Street, St. John, N.B.
567 Banning Street, Winnipeg, Man.
Vancouver Machinery Depot,
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Canadian Carbide

Made in Canada

SOLD THE WORLD OVER

Second to None in

QUALITY, GAS YIELD AND PACKAGE

Works:
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Shawinigan Falls Que.

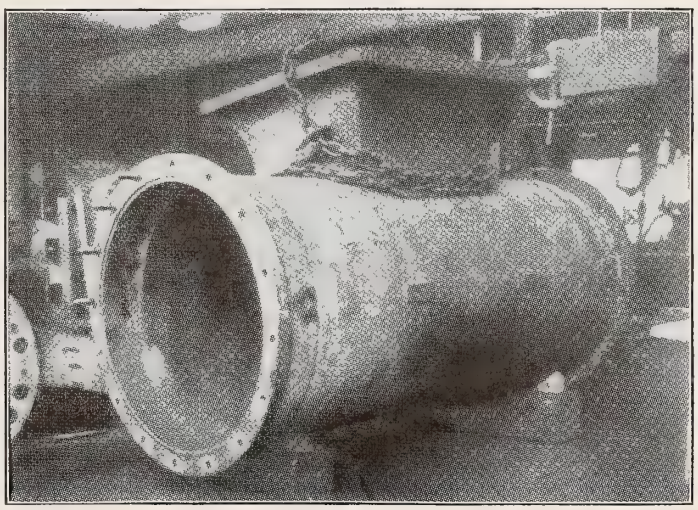
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MONTREAL - CANADA

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This Cylinder was built entirely by the Oxy-Acetylene Process, and, submitted to careful and methodical tests under actual working conditions, was found to be more than equal to any strain to which it could reasonably be subjected. The accumulated evidence that Oxy-Acetylene Welding is suitable for practically every purpose involving the joining of metals is overwhelmingly proven, and is the best proof of its successful application to your industry.



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Why not investigate to-day? Our experience is yours for the asking.
It is only necessary to attach this ad. to your letterhead and mail to us. Full particulars will be sent by return.

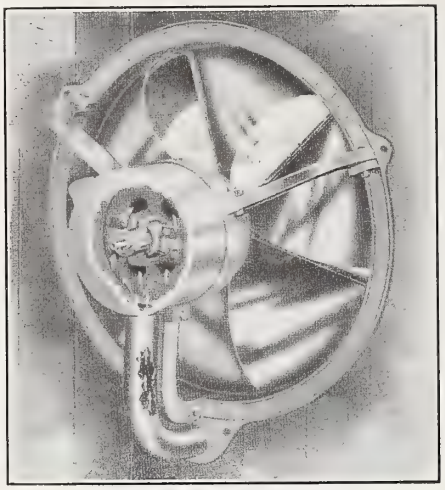
The Pioneers of the Process with factories all over the world

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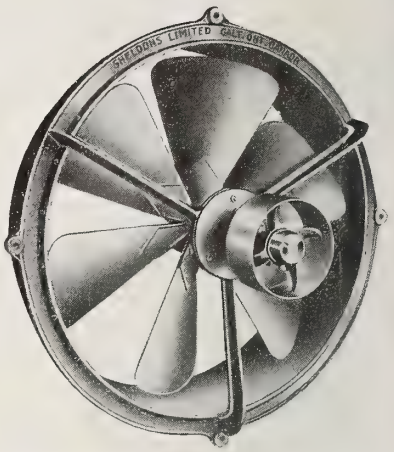
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Electric Driven Propeller Fan with totally enclosed dust-proof motor. For any current.

Do you remember last summer with its sweltering temperatures? Be prepared this year. Make provision for your requirements now. Our ventilating fans will relieve the situation. Write for our Bulletin No. 50.



Pulley Driven Disc Fan. Made in sizes from 18 inches to 96 inches in diameter.

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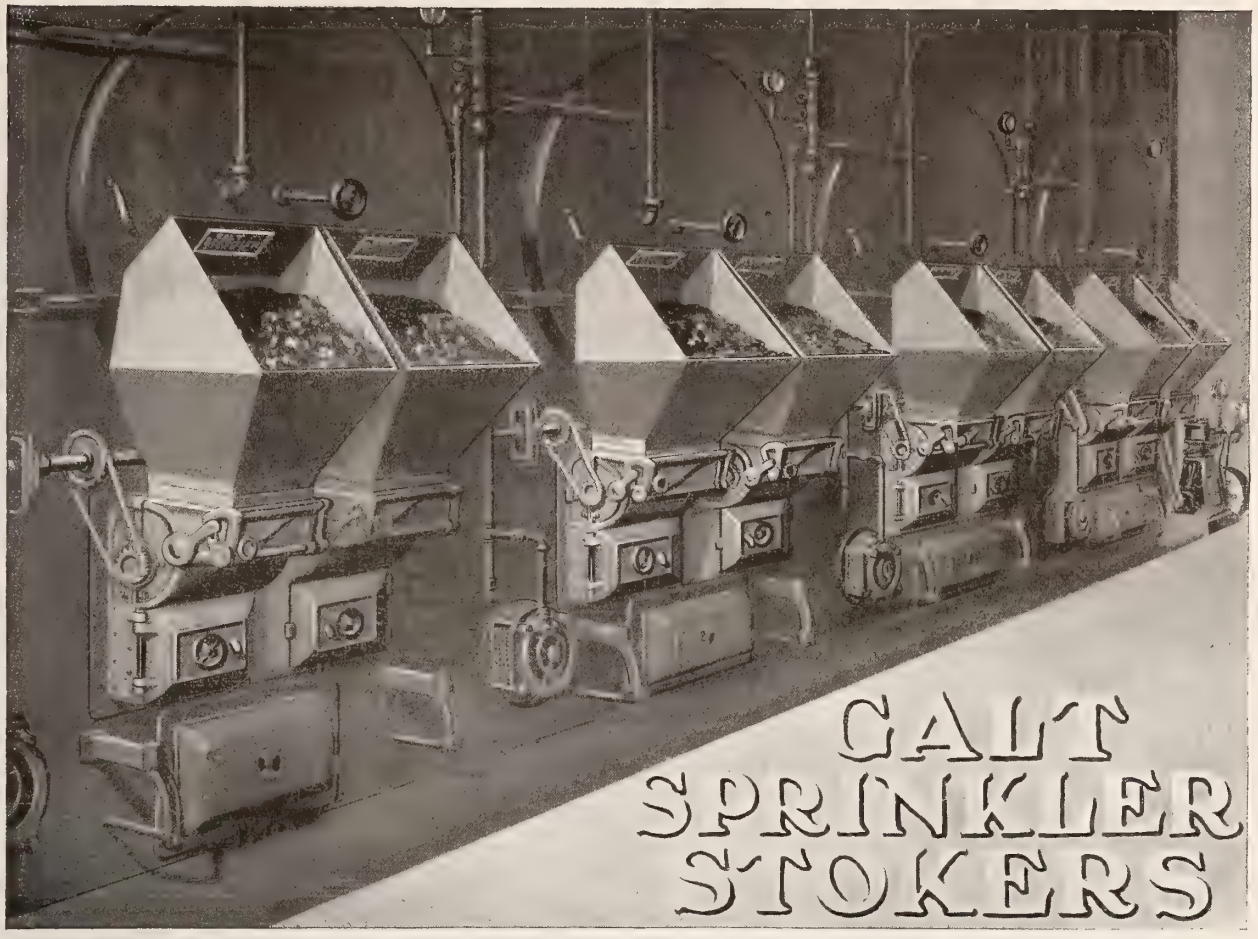
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Typical Installation of Stokers as Applied to Four 150 H.P. Return Tubular Boilers to Operate with either Natural or Forced Draft and Burn Low-Grade Fuel without Smoke.

A BIG PILE OF COAL SAVED with This Highly Efficient Stoker

Can be Installed on One Boiler in 12 Hours

WHAT THE EXPERTS FOUND

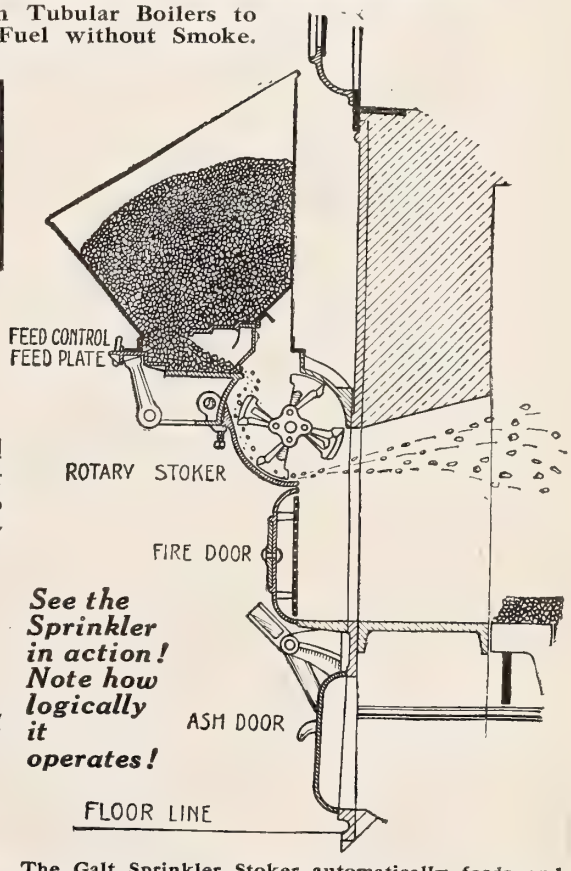
One of the Largest Engineering Firms in Canada have just had their mechanical engineers test the economical efficiency of the Galt Sprinkler Stoker in their own power plant and have placed a further order with us to equip the whole of their boilers with our machines. The above Company writes us:

> "We beg to state that we have compared the two tests made on our 250 H.P. water tube boiler before and after your stoker was installed and find that **THE NET GAIN IS 13%**. This saving is sufficient to warrant us in ordering the balance of the stokers (8) and we would advise you to go ahead and have them shipped as soon as possible."

The Above Saving of Coal Must Interest You
Write Us Now

ASK FOR ILLUSTRATED CATALOGUE

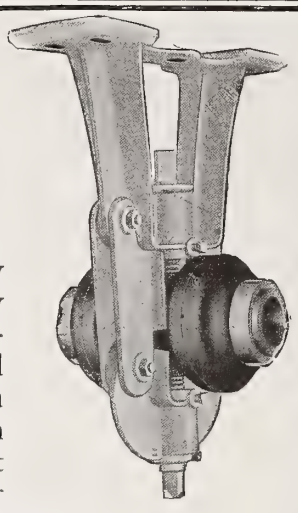
GALT FOUNDRY CO., Limited, Galt, Ont.
Toronto Office, 826 Traders Bank Building
PHONES: Junc. 3354, Main 4362



See the Sprinkler in action! Note how logically it operates!

The Galt Sprinkler Stoker automatically feeds and uniformly spreads the fuel to the furnace in a light continuous stream and gives a perfectly level fire, 3 to 4 inches thick.

YOUR BIT

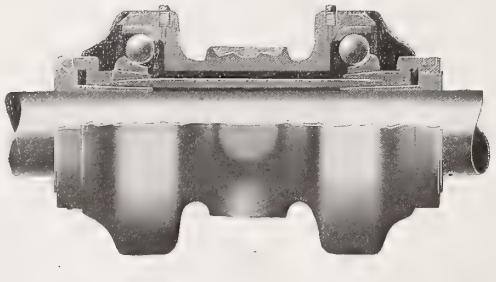


You have probably invested in Victory Bonds, and contributed to the Red Cross. Perhaps you are economizing in many ways also; but there is still another way to help—save power.

Chapman Double Ball Bearings

save 20 per cent. of power by eliminating friction. If you are wasting power in transmission, you are wasting coal—one of the articles the Government requests us to conserve.

It is not necessary to shut down your plant to install Chapman Bearings. They are interchangeable with self-oiling bearings of the same shaft size, and power is not the only thing they save.



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337-351 Sorauren Avenue, Toronto
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Transmission Ball Bearing Co., Inc.
1050 Military Road, Buffalo, N.Y.



MUELLER

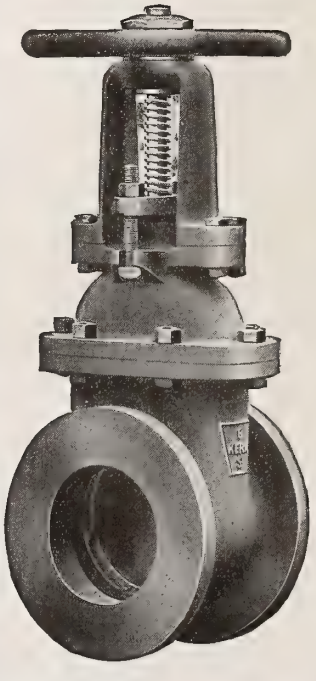
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Globe and Angle Valves, with an even thickness of metal throughout; valves that can be repacked under pressure both open and closed. The pipe threads are full length. The valves contain full sized water ways, and are cast from steam metal of our own special formula.

MUELLER Globe and Angle Valves are compact and embody all the most practical and desirable features. These are positively the highest grade valves on the market to-day.

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Kerr Iron Body Gate Valves



embody all that is modern in gate valve construction. Strong, compact and pleasing in appearance.

Every valve tested and guaranteed.

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Valve Manufacturers :: Walkerville, Ontario

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Assurance of the best results, both economic and productive, is found in the constant use of **Atkins Sterling Quality Saws.**

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Send for our "C.L." Catalog containing items of interest to you.



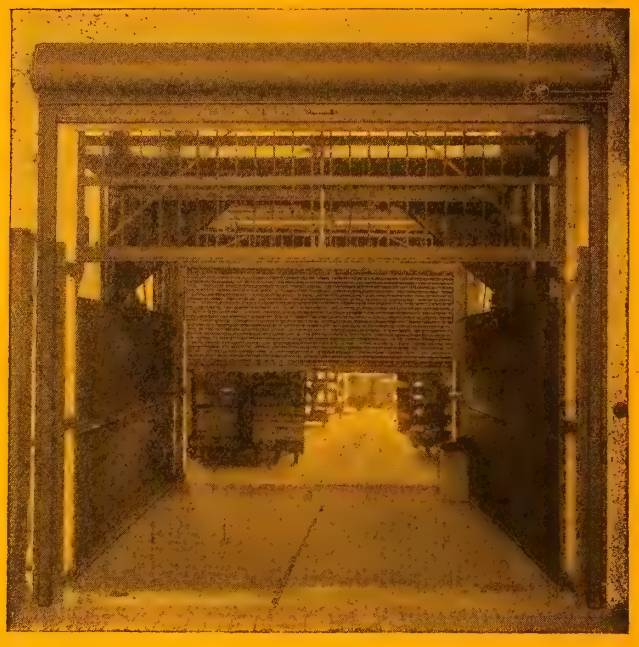
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Lower Insurance Rates in Old Buildings

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Ordinary sliding or swinging doors may be out of the question.

In many cases they are. No sliding or swinging space for them. No room overhead. The opening must be left unprotected.

But, Ormsby Rolling Steel Doors will fit any opening, however awkward. They roll up overhead. Slide up like a window-blind, the weight being counterbalanced by heavy springs. Overhead they occupy about 12 to 14 inches; at the sides, 3 inches or less.

And these doors command the lowest rates. They carry the Underwriters' label. They are very strongly made to give long service under hard usage.

Our representative will show you how to use these doors so as to get lower insurance rates. Write for full information.

Agents:—F. A. Gillis Co., Limited, Halifax, N.S.; D. A. Cummings, Brockville; M. J. Skelly, Ottawa, Ont.; A. T. Chambers, Vancouver

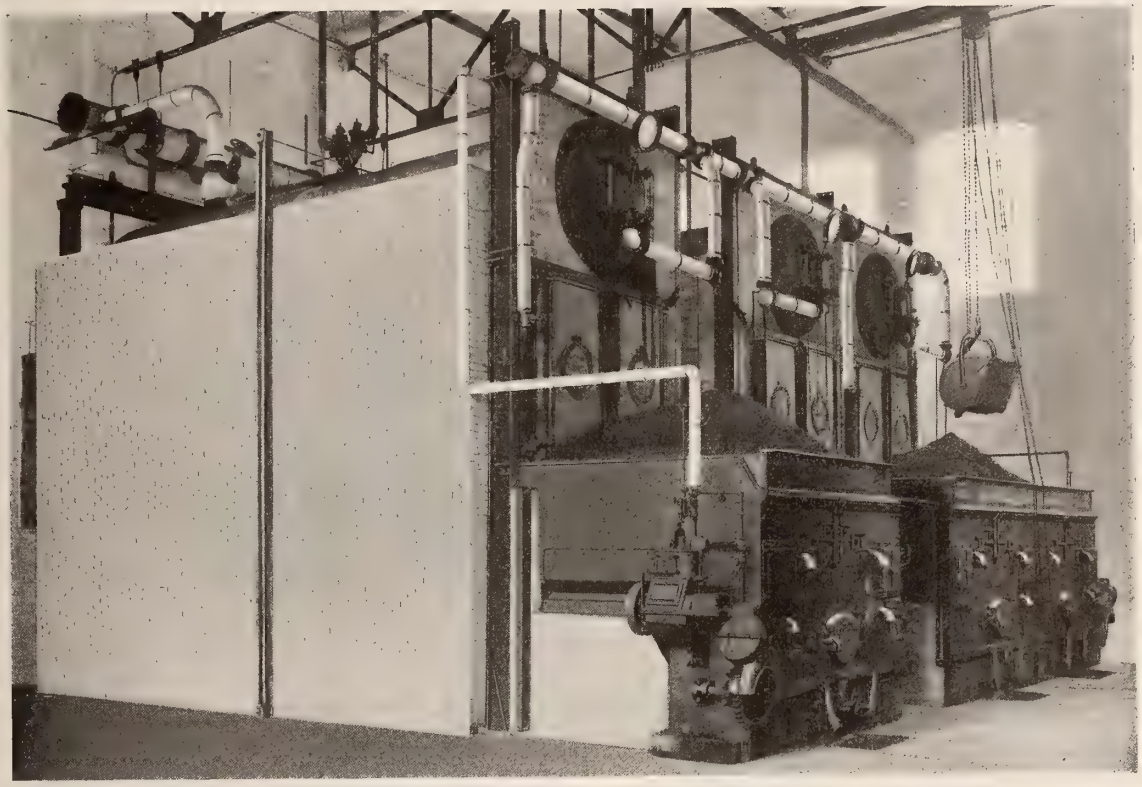
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Consult our Engineering Experts about your Power Problems

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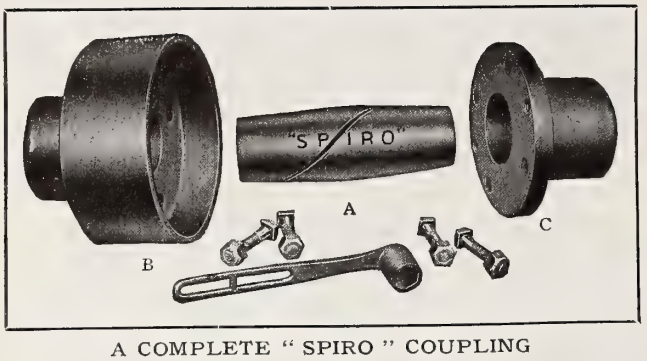
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A COMPLETE " SPIRO " COUPLING

How to Use the "SPIRO" Coupling

Just to show you how simple and efficient the " Spiro " really is, listen to this.

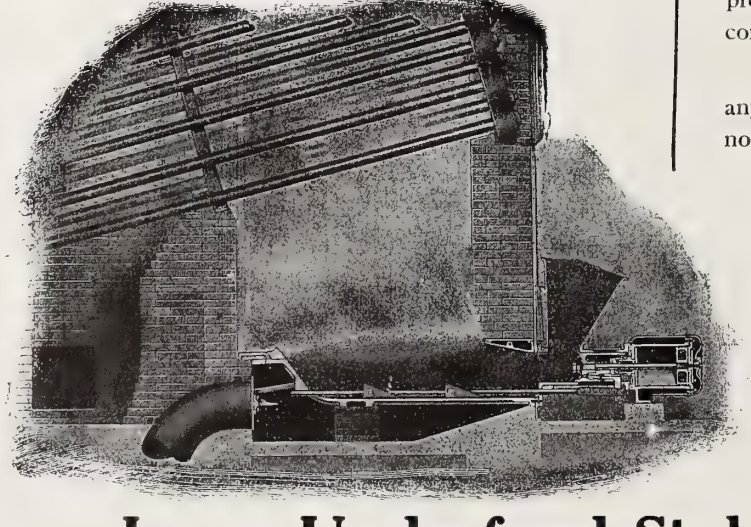
Place part (b) over one end of the shaft, do the same with part (c) on the other end of the shaft. Take part (a), the Spiral Sleeve, and place the ends of both shafts through it until they come together within 1/16" in the centre of this sleeve. Draw parts (b) and (c) together over the sleeve and bolt together. " There you are!" Now the more you tighten the bolts the stronger the grip on the shaft, in fact the grip of " Spiro" Couplings is 50% greater than any other compression coupling. No time wasted, no hard labor.

Catalogue and prices on request. Want them?

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The Jones Underfeed Stoker



THE JONES gets all the good out of even the poorest coal.

Its success lies in automatic control of both coal and air. It feeds the coal and provides the air necessary for complete combustion.

Where there's a Jones there's never any unburned coal in the ashpit: there's no soot; there's no smoke.

The Jones utilizes all the volatile ingredients present in the fuel, thus getting value from every heat unit in the fuel.

Write for fuller particulars.

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STANDARD RETURN TUBULAR BOILER

We make boilers of all kinds for any service.

We are also sole Canadian makers of Erie City Water Tube Boilers, Vertical and Horizontal.

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For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

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ENGINEERS AND BOILERMAKERS

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Are designed for every class of service where packing is required in power plants and on locomotives and steamships.

They have been the accepted standard of the world for more than thirty years.

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All our efforts have been directed toward improving and perfecting our packings to meet the continual increase in steam and hydraulic pressures, due to the wonderful improvements of modern machinery.

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We are exclusive packing manufacturers—we make nothing else.

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Boilers for Quick Shipment

Two 72 x 18 H.R.T., 125 lbs. W. P. Ontario Code
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Twelve	50 H.P.,	125 lbs., Ontario
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Three	25 H.P.,	100 lbs., Ontario
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One	16 H.P.,	100 lbs., British Columbia

Special prices will be quoted on the Locomotive and Vertical Boilers subject to prior sale. Kindly address nearest office

Engineering and Machine Works of Canada

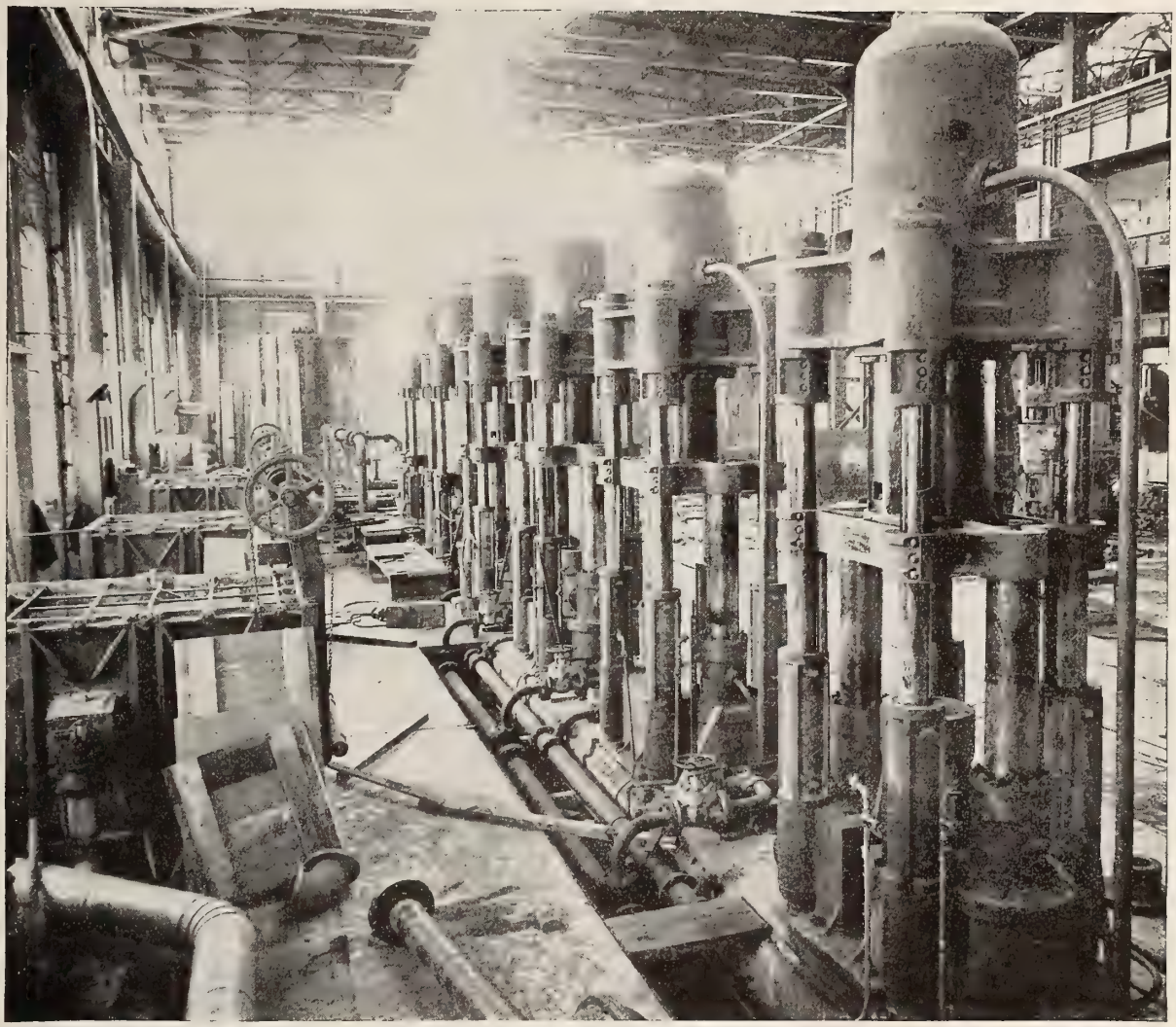
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¶ We would be pleased to furnish samples on application, and would refer you to Mills and Electric Furnaces who have used it.

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in a position to know that whenever you buy without first obtaining our quotation, you risk

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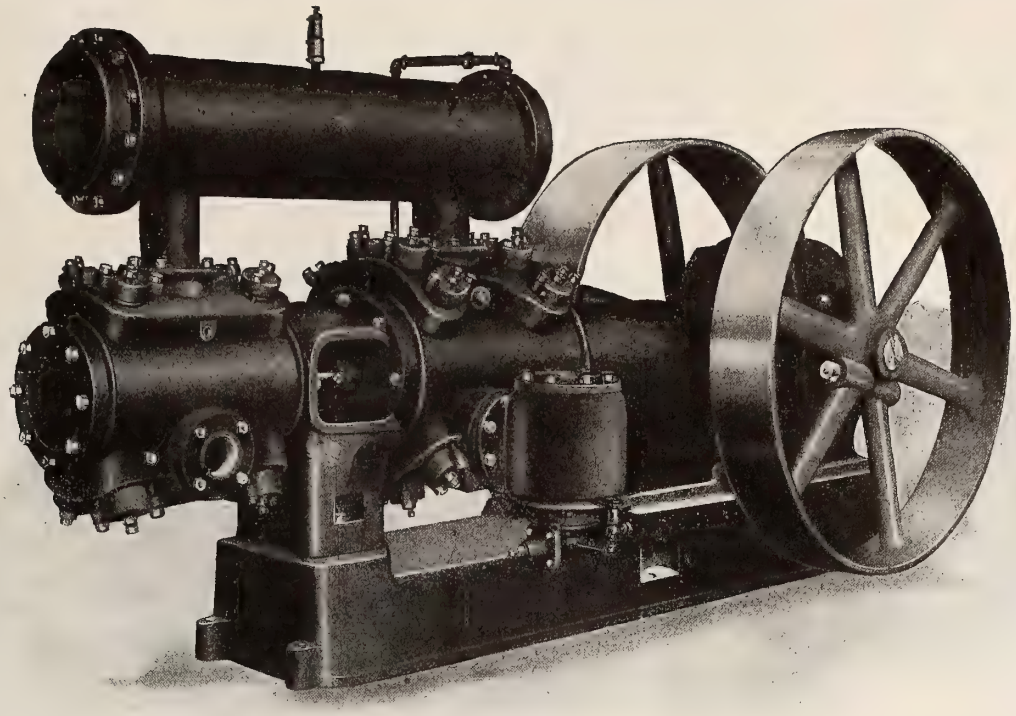
dollars which should stay in your pocket. For ***Our Products*** are of the ***right quality,***---at the ***right price***---and ***we can make deliveries to suit you of***

SHEET METAL STAMPINGS

of every description

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CLASS "EL-2", Straight Line, Compound, Power-Driven Air Compressor.
Regulating Device shown above is our A-44 Unloader, and is supplied to order only.

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This type is distinguished by extreme compactness and requires the simplest foundation possible. At the same time, the principal moving parts such as crosshead, connecting rod, crank, etc., are quickly reached for inspection or adjustment, by means of oil-tight, removable covers.

Packing glands are readily accessible, and renewal or repair of any parts can be speedily attended to.

"Circo" leaf valves, liberal intercooler surface and a most thorough system of water jacketing, make the over-all economy of this style of machine remarkably high.

Automatic lubrication at all speeds reduces attention, while running, to the lowest terms.

Let our nearest branch office know your requirements, and prices and specifications will be promptly submitted for the equipment best suited to your needs.

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General Offices: Montreal

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Engineers, Manufacturers and Erectors of

STEEL STRUCTURES

Railway and Highway Bridges, Buildings, Turntables, Electric and Hand Power Travelling Cranes, Coal and Ore Handling Machinery, Lift Locks and Hydraulic Regulating Gates, Transmission Poles and Towers.

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Manufacturers of

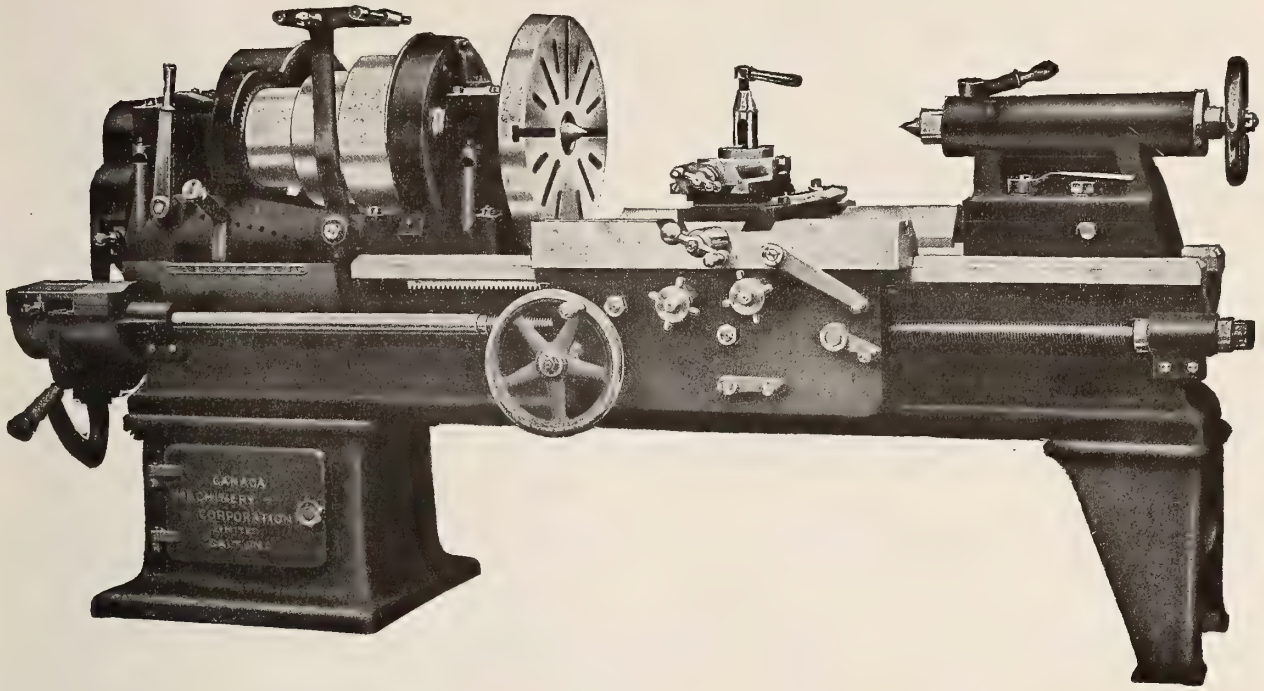
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Engine Lathe with Quick Change Gears

Sizes 20" and 24"

The C. M. C. lathe is a modern high-speed tool of great strength and accuracy. It is in daily use by thousands of pleased customers in Canada, Great Britain, United States of America and other countries.

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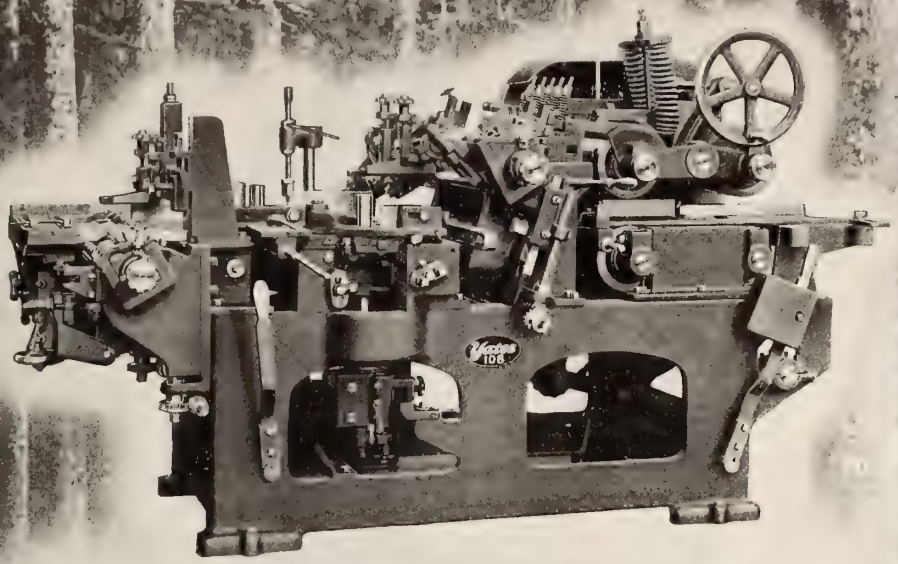
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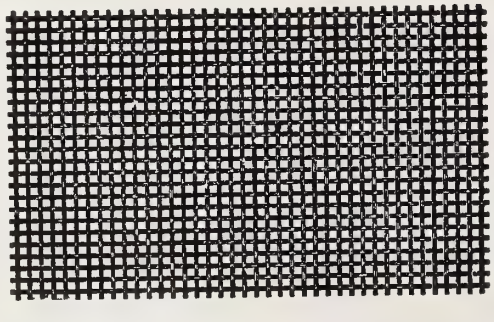
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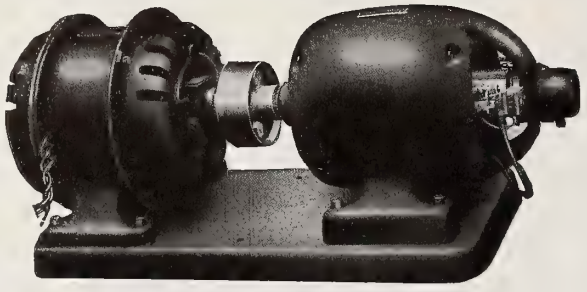
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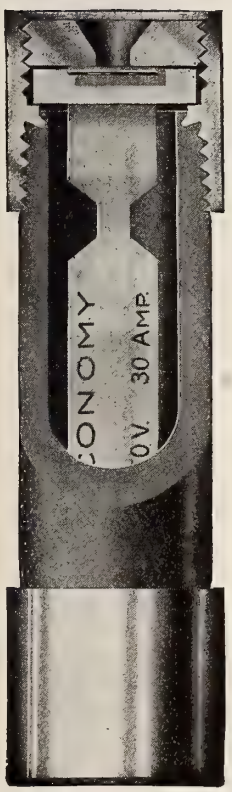
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ISSUED BY

The CANADIAN MANUFACTURERS ASSOCIATION.

INCORPORATED.

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Provincial Rights and Western Forests.

OPPOSITION to the proposal that the ownership of the natural resources of Manitoba, Saskatchewan and Alberta should be vested in the provinces themselves, as is the case with the other provinces of Confederation, is raised by the Canadian Forestry Association. The Association is suspicious of the motives of those Western politicians who advocate this step. At the present time protection of the forests of the Prairie provinces is a Dominion charge and the Dominion is doing this work for the provinces at a very considerable loss. It is scarcely conceivable that, if the provincial governments took charge they would be willing to continue to care for the forests without deriving some pecuniary advantage from the undertaking. That is why the Forestry Association feels that there is danger of exploitation should the provinces get possession.

"The Western forests, as they stand," says a bulletin of the Association, "are of immense value to the settlers in the neighborhood of the reserves, who get practically free lumber. They support numerous lumber industries and give invaluable aid to the coal mines with pit props, and to the irrigation enterprises with watershed protection. One must bear in mind, however, that the population of the West is only in its infancy, that the future will place a value upon the forest possessions incalculably greater than does the present generation. The population of the New Canada of a few years hence will require abundant and cheap wood supplies even more than the people of 1917. For every tree maturing in 1930 or 1950 there will be an important use and an eager market. The province that possesses a near-at-hand wood supply will outstrip the province in which neither care nor foresight has been exercised in its growing forests.

"The forests of Alberta are primarily for Alberta's use. So with Saskatchewan and Manitoba. Each province gets all the dividends of conservation, whether that conservation is applied and paid for by a provincial or a Dominion government.

"To all informed students of the situation, the question to be settled is not who shall administer the forests of the three Prairie provinces, but whether any authority, save the Dominion Government, would be willing to put up the money to do the job at all. It is not a matter of selling timber and securing nice profits for the public treasury but of *growing* the timber, of overtaking the gross damage of repeated forest fires. It is not a matter of cashing in on some of the inexhaustible resources but of stopping the exhaustion; not of extracting financial fillips for the present, but of laying a broad foundation for the necessities of the future. This is something of what is meant by 'control of the forest resources of the Prairie provinces.' And it is at the same time substantially opposed to what the platform exponents of 'provincial ownership' sometimes would wish their constituents to understand."

Campaign for Uniformity of Provincial Legislation.

THE Canadian Bar Association has drafted a bill for presentation to each of the provincial legislatures embodying a plan which in its opinion would be most feasible to give the desired results. This bill provides for the opening of a commission in each province consisting of three members of the Bar whose advice will be solicited on all legislative proposals affecting the transaction of business. Further provision is made whereby these provincial commissions will meet in conference at least once a year for the purpose of seeing whether pro-

vincial legislation cannot be harmonized and reduced to something like a uniform basis.

The proposal has already been favorably considered by some of the provincial governments. On behalf of the Ontario Government Sir William Hearst has promised that the bill will be put through at the session now sitting.

There can be no doubt as to the advantage of this arrangement. Every step taken in the past towards the assimilation of our British laws has tended to the more effective and efficient conduct of business. Some timorous souls have occasionally supposed that any step towards unification of our widely scattered provincial systems would in reality be a retrograde step to be viewed with disfavor by the legal profession itself. Happily, however, the leaders of the Bar and of business are practically agreed that the assimilation of Canadian commercial laws would be of distinct advantage to the industrial and commercial well being of the Dominion as a whole. The Canadian Manufacturers Association has declared with no uncertain voice in favor of an enlightened scheme of legal as well as industrial uniformity.

A Proposed Federal Bankruptcy Law.

A DEMAND for a National Bankruptcy Act to supersede the nine separate acts which are now in force in the nine provinces of the Dominion, and which are totally out of touch with the spirit of the times, was made at the recent Bar Association meeting in Toronto.

At present there is no uniformity in the assignment laws, and commercial houses have frequently suffered by the lack of effective control over voluntary winding up in insolvencies, and the shortcomings of poorly equipped assignees. Attempts have been made to remedy these obvious evils. Bills have been introduced in the past which, for some inexplicable reason, never reached the law stage. The British North America Act gives the Dominion Parliament power to pass such an Act which, having regard to the growing industrial and commercial expansion of the country, is of national importance and would undoubtedly make for the stability of trade. The Association would welcome this legislation.

So-called Mill Construction.

FROM an address delivered by John R. Laidlaw, of the Norwich Union Fire Insurance Company at Vancouver, the following pertinent paragraph has been extracted. The subject is one that manufacturers generally should note and ponder over:

"We find a good many mill construction buildings which are only so-called mill construction buildings. They are in fact very much in the position of a man who will buy himself a heavy overcoat and gauntlets, and warm underclothing, and put them all on and go out on the wintry street in his bare feet. A good many people build mill construction buildings on that system. They have heavy walls and double floors, and then they will put a well hole in the centre or construct an open stairway or a chute and expect you to give them a low rate. They have merely built a good stove, and the contents of such a building will be burned more thoroughly than in the ordinary joisted building. The latter will fall before it is half burned, and you may pick out $10,000 of salvage from the cellar, but the other will stand and everything in it will be consumed."

Fuel Problem.

THE most urgent considerations of patriotism demand that the local consumption of coal be reduced as much as possible to facilitate the preparation of troops, munitions and food supplies and their movement overseas from both United States and Canadian ports. A vigorous campaign for the conservation of coal supplies is being waged in the United States. Canada can surely do no less.

The consumption of coal can be considerably reduced through the wider use of wood fuel, of which we have large supplies. The production of wood fuel has meanwhile been curtailed due largely to labor shortage, coupled with the high cost of such labor due to heavy enlistments, To stimulate production, and to increase the demand for wood fuel to the necessary degree, will require specific and well organized effort on the part of provincial, city and municipal governments. It is a question of preparedness, and results may be expected to be commensurate only with the effort exerted.

Under normal conditions the demand for wood fuel is relatively small, due to the greatly increased use of coal for nearly all fuel purposes. The scarcity of coal, however, has resulted in greatly increasing the demand for wood fuel.

The authorities anticipate that the fuel situation will continue to be more or less critical throughout the duration of the war. Accordingly the production of large quantities of wood fuel is essential to meet the situation. Farmers and rural communities within easy reach of wood supplies should make as general use of this fuel as possible to relieve the demands for coal and freight cars alike. To a certain extent this would involve reversion to the old-fashioned stove, which has become more or less obsolete. This will, of course, be feasible to a lesser extent in the larger towns and cities. The general substitution of wood for coal in furnaces and stoves during early autumn and late spring, as well as during mild weather in the winter, when only a moderate fire may be required, is desirable.

The really essential thing is that there shall be definite recognition that an emergency exists which could in part be met through the wider use of wood fuel. Also, that there should be provision for committees in every municipality to determine what specific action is necessary and feasible, and to see that such action is taken.

Another fuel substitute which has received attention at the hands of a special committee of the Canadian

Manufacturers Association is that of peat fuel. It is believed that one of the ways to become independent of foreign resources is to develop our peat bogs. The reason previous projects along this line had failed was because long discarded methods had been used to develop the industry. As a result, the public lost confidence in peat fuel. In several of the European countries there is a flourishing and extensive peat industry. In Canada, a country possessed of excellent peat resources and dependent to so large an extent on foreign supplies of coal, this industry has been so far neglected. Further, the necessity may occur for the United States to keep her fuels within her own country. It is obvious, therefore, that it is the duty of Canada to develop her own fuel resources of which we are assured we have abundant supplies of good quality for our own needs.

The great areas of peat bogs covering 37,000 square miles, it is computed would yield a total tonnage of fuel of 28,000 million tons of 25 per cent. moisture peat fuel, equivalent to about 16,000 million tons of coal on the basis of actual heating value. Twelve thousand square miles of peat bogs are distributed through the central provinces, Manitoba, Ontario, Quebec and New Brunswick, and the estimated tonnage of peat in that area is 16,000 million tons, equivalent on the basis of actual heating value to 9,000 million tons of coal.

With Canada thus endowed with fuel deposits on a magnificent scale, the Special Fuel Committee feels that their proper exploitation and economic use should not be delayed, and the committee is prepared to give its hearty support to any comprehensive scheme by the government to remedy the present situation.

Germany's Railway Situation.

EVIDENCE that the railways of Germany are staggering under a stupendous burden has been collected by the *Railway Age Gazette,* which says that "however bad conditions may have been in the United States, they were considerably worse (last winter) on the railways in Germany." The Prussian Minister of Finance is quoted as predicting a deficit in the operation of the railways of the kingdom in 1918 of half a billion marks. Rates, he said, must be raised, but even so, with an advance in passenger rates of 10 per cent.; freight rates, 15 per cent. and military rates, 10 per cent., there will be a deficit of 159,000,000 marks.

But it is not alone financially that the railways are falling behind. The service has deteriorated. The occupation of so much extra territory has become a burden and the drain on resources has become immense. It has been estimated that the railway mileage seized amounts to roughly 11,000 miles, only a little less than the entire railway mileage of Great Britain. It may be taken for granted that not any too much rolling stock was left behind by the retreating inhabitants, especially locomotives, and this has meant the provision of thousands of engines and cars from Germany itself.

It was in October last when the harvests were being transported that the breaking point was reached. On the eighteenth of the month, fares by all fast trains were doubled, and on the first of November many trains were struck off. Austrians and Hungarians followed suit. The immediate effect was to reduce traffic by about two-thirds.

The Price of Newsprint.

IN a recent issue, the *Financial Times,* of Montreal, deals with the controversy that has been raging for over a year past between the newspaper publishers of Canada and the manufacturers of newsprint paper over the question of price. Like practically every other commodity, the price of newsprint was advanced as the cost of production rose, but the publishers made such strenuous objections to paying the higher figure, claiming that there was a combine working against them, that an inquiry was allowed by the Government. This investigation has dragged on ever since, with the feeling between the two parties continually growing worse. A fixed price was named by Order-in-Council last year, and this remained at the rate of $2.50 per cwt. up to February 1st. Since then it has been raised to $2.85 per cwt., though the extra 35 cents does not go to the manufacturers but is held in trust until the price question is finally adjusted.

The point made by the *Financial Times* is that all this price-fixing business is playing hob with one of Canada's largest and most profitable exports.

"There is nothing," says the *Times,* "which Canada needs so much, in the economic sphere, as exporting industries. Our financial situation urgently requires us to develop as many new ones as we can, and to develop to a greater exporting capacity those which we already have. And if there is a distinction to be drawn between industries, marking some as being more desirable in the present juncture of affairs than others, it is the line between those industries which sell their products abroad for cash and those industries which receive payment in paper only. The newsprint manufacturers of Canada sell for cash. Their market is in the United States, the one country which is still in a position to pay cash to us for all it purchases, or, rather, the country from which we are compelled to purchase so largely that everything we can export to it is only so much written off our own bill, so much for which we ourselves need neither pay cash nor go in debt. In this respect the paper industry is the premier industry of the Dominion, for our agricultural products and our munitions alike go to customers who cannot pay cash, and whom we ourselves have to finance or lose their custom.

"It is, therefore, plain beyond possibility of controversy that the newsprint industry is one which should not be subjected to any interference which would discourage its export business or limit or reduce the price which it obtains from its foreign customers."

Industrial Peace After the End of the War

By THOMAS RODEN

Ex-Chairman, Toronto Branch, Canadian Manufacturers Association

THE question of industrial peace after the terrific national and social conflict arising from the war is engaging the minds of many serious people to-day.

If there is to be industrial peace, the two constituent elements, Labor and Capital, must consistently strive for and have the widest interest in the respective welfare of each. It is useless for Labor to align itself as a unit on one side, and say we must claim our desires, as it is for Capital to array itself on the other side and arbitrarily insist on its cherished rights. The interests of both, though separate, are identical. Trades are so varied, and the conditions so diversified, that a fuller knowledge of the problems must be acquired by those who are selected to arbitrate those problems. There are trades that are very local in this influence, as opposed to trades which are very general in their interest. The problems which affect the one are entirely different from the problems which affect the other.

Country Should be Self-contained.

Industrial history is replete with illustrations of the manner in which selfishness or indifference bring the downfall of Capital and Labor alike. There is no doubt that in order that a country may be strong industrially and financially, it must be more or less self-contained. To this end it must encourage and foster every form of industry, with minimum waste, or loss in transportation, so that its products may find a ready market. Too often the statement is made that trades which are not indigenous to the country are not necessary, but a trade may be put into the indigenous class by the perfection of its product, and that can be accomplished only by individual effort and ability.

For instance, the watch movement industry at one time flourished in England. The trade gradually drifted to Switzerland, and later was taken up by the United States, where, to-day, millions of capital are invested and thousands of workmen are employed. One might argue, why was it necessary to duplicate these plants? The answer is expressed in individual and collective enterprise; some one saw a new opportunity for business, perhaps conceived some improvement, and what seemed well nigh impossible, became a great success. To accomplish these results, there must be untrammelled scope for the individual man. If we want industrial peace this cherished liberty to cultivate individual enterprise and skill must be jealously guarded. Cities, like countries, try to attract industries. For what?—simply to round out their potential resources. I am in no way opposed to any body of men getting together to improve their positions, but too often such men are misdirected by others of their class, who are entirely without experience in the industry they seek to exploit, and they may thus be responsible for a conflict that a better knowledge of conditions would have avoided.

To have industrial peace, labor must standardize its class and allow for grading. Minimum wages are too often set without any regard for equity, based on fixed results wrongly drawn from unequal conditions. While the personal or human element plays a very important part in wages, there is always the merchandise basis, definite and arbitrary. Goods can only be sold on a comparative value basis. The charge of a plumber for repair work may be any price charged within reason; the same may be said of a plumbing contract, because these are entirely local. But the basis of plumbers' supplies is entirely one of competition with other cities or countries, and the producers of such goods must receive an entirely different treatment. Labor and Capital are entirely interdependent. Peace is the primal essential to social well-being. To assure peace, there must be equity, and withal there must be liberty.

> "A day, an hour of virtuous liberty,
> Is worth a whole eternity in bondage."

Again, increased production should not be penalized with excessive charges on overtime. The opportunity to recoup the individual, as well as the nation, for the costs arising from the great waste of the war, and for necessary repairs that had to be deferred because of shortage of men or high cost should be fairly conceded. Further, the high taxes now imminent, and the numerous other charges incident to industry must be dealt with on the same business basis.

Excess Charges for Overtime.

Excessive wages for overtime either eliminate altogether increased production or unfairly penalize the consumer. If the laborer demands double pay in an emergency, which may be the result of an accident, to delay attention to which may impose heavy loss on many fellow workers, why should not the farmers decide to charge double for his work, when for the sake of saving his crop he will at certain seasons work sixteen hours a day? The same reasoning may be carried right down the line. These excess charges come straight back on the consumer, with redoubled weight, largely on account of the immutable laws of finance. If we are sincere in our efforts to produce, to acquire honest wealth, so as to meet our liabilities, we must reckon with these considerations and be ready to facilitate their adjustment.

It is unmistakably clear that there is only one way to meet the fearful wastage of this war—by production. The application of science to industry, the sympathetic co-operation of Labor in every new method, eliminating waste both of time and energy to increase output, will solve, as nothing else can, the abstruse problems of constructive industry.

If Canada wants to be in the front line, giving means of comfort to her people, enabling them to enjoy the fruits of education and civilization, let us all remember that this can be accomplished only by consideration of all the interests involved, without favor or prejudice, and having a due regard for the full enjoyment of liberty and equity.



A truck in service between two United States cities

Motor Cars for L.C.L. Freight Shipments

To Relieve Freight Congestion Motor Trucks Are Now Being Used for Shipments as Large as Five Tons and for Distances as Great as Two Hundred Miles

UNDER present conditions, when the railroads are taxed to their utmost with the imperative demands placed upon them by the many military necessities and the task of moving sufficient coal and steel to supply the domestic and industrial requirements, less than carload shipments of all classes of freight must be looked upon with the greatest disfavor, and are in many cases being flatly refused. Such refusals are not through antagonism or spite, but are imperative in the present emergency, when every resource must be used to the maximum for national defence. Small shipments require practically the same amount of equipment, time and motive power as do large ones, and are therefore to be avoided.

The only possibility of immediate relief is by the systematic use of motor trucks, which are already being used for shipments as large as five tons for distances as great as two hundred miles, and the probabilities are that the maximum in distance has not yet been reached, especially for emergency shipments where troubles from delayed or lost articles must be avoided. Large industrial companies already have under serious consideration plans for increasing the uses of trucks for such purposes, and the established truck express lines are enjoying increases in patronage.

In many cases the use of heavy trucks and vans is essential to success for both long and short hauls, and drivers are being used in relays so that one sleeps while the others handle the car. This permits the constant day and night use of the truck to maximum efficiency.

Used pleasure cars, especially those of strong construction, can be used to excellent advantage, especially for light loads and long rush trips. The labor and expense of converting them into light trucks are small, and their use as such gives temporary relief to the truck manufacturers, already crowded with army orders for trucks and other machine parts.

The automobile, once feared by the railroads as a serious competitor, is now in a position to be their means of deliverance from serious over-congestion.

The Government is showing what can be done along this line. It has recently announced the opening of a one hundred mile motor parcel post route between Philadelphia and Baltimore and the service will soon be extended so as to include New York and other large cities.

How far this relief can be extended is a matter of personal endeavor and of co-operation. In many cases raw materials can be trucked to their final destination even when they are of a bulky nature. Many finished products lend themselves readily to this form of transportation, and customers can be served more promptly and economically by the truck than would be possible by a delayed rail haul. Some districts are already served by auto express lines and their usefulness can be still further increased by both buyers and sellers pooling their interests so that all empty or light load return trips are replaced by capacity loads.—*Du Pont Magazine.*

Manufacturers and the Exchange Question

Influences Which Have Been at Work to Produce the Abnormal Conditions Recently Prevailing in Connection With the Rate on New York Funds and How the Situation Will be Relieved

By H. M. P. ECKARDT

ON the several occasions during the past three years in which the premium on New York funds has ruled in the neighborhood of 1 per cent., those Canadian manufacturers who require to import fuel or raw material more or less continually from the United States have had the exchange problem pressed upon their attention in a disagreeable manner. Especially during the last three months, in which period the quoted rate touched the extreme high level of 1⅝ per cent., has the question proved troublesome. The figures quoted daily in the papers represent, of course, the rates between banks, and a customer buying American remittance from his bankers would probably be obliged to pay an additional ⅛ or ¼ to cover the bank's own commission.

When the premium stands at such an abnormal level, the bankers are reluctant to carry very heavy balances in New York; if they bought large blocks at these prices and held the funds there might be any day an announcement of a large Canadian credit in the United States, or some other development which would have the effect of suddenly reducing the value of their balances to par or thereabouts, perhaps involving them in a heavy loss. Consequently the safest policy, from the bank's point of view, is to run along on a hand-to-mouth basis, and to go into the market and buy the necessary exchange whenever a manufacturing or other importing customer requisitions for an unusually large amount.

Exchange in Normal Times.

In normal times the banks derive a large volume of exchange from manufacturers engaged in the lumber and auxiliary industries, from exporters of foodstuffs, minerals, etc., and from proceeds of securities sold abroad by provincial Governments, municipalities, railways and industrial corporations; and the sales of exchange are mostly made to importers and to the corporations and public bodies requiring to meet interest and dividends on securities held abroad. To us the exchange with the United States is the vital matter, as our custom from the early days has been to sell or negotiate in New York the sterling bills drawn by our exporters, and to buy in New York such sterling exchange as we need to cover any large remittances to London on behalf of our importers or others. Thus it usually happened that a heavy export movement from Canada to the United Kingdom, or large sales of our securities in London, sooner or later swelled the balances carried by our banks in New York, perhaps sending New York funds temporarily to a discount; and contrariwise, a large or sudden demand at their Canadian branches for drafts on London would perhaps force the New York agencies of our banks to scurry around in the market there to buy the exchange required to restore the London balances to the proper level. Then, finally, the free movement of gold between Canada and New York always served to prevent the American exchange from passing beyond certain well-defined limits above or below par. The cost of shipping gold from Montreal to New York, or from New York to Montreal, was from 5-64 to 3-32 per cent.; so when our balances at the American centre grew too large, the banks owning the surplus balances would offer for sale in the Montreal and Toronto exchange markets their drafts on New York correspondents. So long as other banks would buy these drafts at prices within 5-64 of 1 per cent. of par, no gold movement was likely; but when the rate of discount passed that figure the bank owning the surplus of New York funds would simply instruct its agents there to ship so much gold to Montreal. In the same way, when the demand in this country for American exchange decidedly outran the supply, the banks here that were short of exchange were obliged to seek it from other banks, which naturally asked a premium; but if the premium exceeded 5-64 per cent., the buying banks, instead of paying it, would present Dominion notes to the Receiver General, get gold for them, and ship the gold to New York.

Conditions Have Changed.

The conditions governing our exchange market have changed importantly since the outbreak of the war. At the outset it was deemed advisable to conserve our store of gold, and to prevent the metal being drained to foreign countries the specie payments on Dominion notes were discontinued. Their holdings of Dominion notes being no longer redeemable in gold on demand, the bankers could not export gold freely—hence the premium on New York funds could no longer be confined to 5-64 per cent. As regards the limitation applying to the discount on American funds, that depends upon the freedom with which the United States releases gold for export. In the opening months of the war gold was not freely given up, and as our banks were then bringing home their balances from New York, American funds went to a heavy discount. Subsequently our neighbors let it be known that they would pay gold to all having the right to demand it; and while that was in force there could be no abnormal discount here on New York funds. Last fall, however, restrictions were placed on gold exports, and as there happened then to be a strong movement of funds this way, New York drafts moved to a discount of nearly 1 per cent., and remained at a heavy discount until the deputation of Canadian bankers visited Washington at the end of October and procured a relaxation of the embargo in Canada's case.

Government Loans.

Then it is to be remembered that, following the declaration by President Wilson at the beginning of April, 1917, a state of war existed between the United States and Germany, the sale of bonds in outside markets by our corporations and public bodies has been almost entirely cut off. There was a Dominion loan of $100,000,000 placed in New York on August 1st, 1917; but $20,000,000 of the proceeds went to retire a maturing note issue of the Government's, and the remainder was quickly absorbed in the settlement of debts due by us to the United States on trade account. Considering that we had accustomed ourselves before the war to providing exchange to the amount of something like $200,000,000 per year through selling our bonds and stocks in London or New York, it will be understood that the cessation of the external borrowing has affected the exchange market severely. It is not merely that we have now to do without these credits which the British and American financial houses were continually placing in our account, but we must at the same time remit

the interest on our external debt, and every now and again we are required to remit the principal money represented by a maturing bond issue of two, three, or five million dollars.

The munition contracts in certain respects have reacted adversely on the exchange position. Manufacturers having large contracts from the Imperial Munitions Board were obliged to import machinery, iron and steel goods, and other materials from the United States, and very large amounts of American exchange were required to settle for these and other importations. Under ordinary conditions, upon the shipment of the manufactured articles to Europe bills would be drawn on London for the consideration, and these bills would cover not only the cost of all goods imported or bought by the manufacturers, but also their wage outlay, other expenses of working, and their profit. Under such conditions the contracts would give us a surplus of exchange, and the problem of paying for the imports from the United States would not be troublesome. However, while our manufacturers duly received their contract price on completion of the orders, and while the exports of munitions have served to swell the foreign trade returns, Canada has not yet received credit in the exchange market for a large proportion of the goods shipped out.

How Munitions Are Paid For.

The Imperial Munitions Board has paid the Canadian manufacturers, to a large extent, with the proceeds of loans advanced by the Canadian banks and by the Dominion Treasury, and this country therefore holds several hundred million dollars of British obligations which have not as yet become available for use in settling our international obligations. Taking the Dominion as a whole, our position at present is similar in some respects to the case of a manufacturer who takes a very heavy contract and, after enlarging his plant, adding extensively to his equipment, and working up the contract, largely by means of borrowed money, delivers the goods and receives payment in promissory notes due some time in the future, which, owing to abnormal conditions in the money market, cannot at present be discounted at the bank. As Canada must meet her international obligations through providing funds at New York, that big American monetary centre stands to us somewhat as his bankers stand to the manufacturer. If the negotiations with Washington, now in progress, ultimately result in an arrangement whereby the United States undertakes to grant credits directly to us or to Great Britain in connection with British purchases here, it would have much the same effect as if we were enabled to rediscount in New York our holdings of British bills. Of course we must remember that the strain on our finances is temporary; even if we are obliged to carry the British paper until the termination of the war, the ultimate redemption thereof will give us a strong position in the international exchange markets. We may be required, however, to deduct from the value of our holdings the amount owed by our Government to the Imperial authorities in connection with the pay and maintenance of the Canadian expeditionary forces.

Rediscounting Bills No Help.

With reference to the action of the Dominion Treasury in rediscounting for the banks their holdings of British bills, it should be remembered that this merely aids the banks in their domestic business—it is practically of no assistance in enabling them to meet obligations payable in the United States. When a bank turns in to the Finance Minister $500,000 of British bills, it receives the proceeds in the form of Dominion legal tender notes, which can only be used (now that they are not convertible on demand into gold) as home cash reserves, for settling clearing house differences in Canada, and as a basis for issuing in Canada extra amounts of the bank's own note circulation. So it will be seen that when a manufacturer in this country asks his bank for a loan of $100,000, with the intention of remitting $40,000 or $50,000 of the proceeds to the United States for raw materials, machinery, etc., the bank cannot satisfactorily cover its outlay through rediscounting British bills at Ottawa.

A new factor in exchange which may develop into considerable importance is seen in the American war orders recently placed with Canadian industrial concerns. Very shortly after the United States entered the war, orders were placed here for blankets and other supplies for the new American armies; but it was not until late in 1917 that the large orders for shells, forgings, etc., began to make their appearance. The Washington Government some time ago estimated that its expenditures during the current fiscal year on its own military and naval preparations (over and above the $500,000,000 per month loaned to the Allies) would be in the neighborhood of a billion dollars per month. And although the actual monthly outlay to date has been considerably less than this sum, it is nevertheless rising rapidly. The American needs being so vast, it is practically certain that they will continue to utilize Canadian industrial facilities on a very large scale, and the prospect at present is that many Canadian plants will be working at or near capacity this year on the British and American munition orders. As regards the latter, payment will be forthcoming in American funds (just what we need) promptly on completion of the contracts. As a matter of fact, the American orders will in some cases benefit our exchange position as soon as they are awarded.

Governments Are Helping.

An instance of this is seen in the arrangement between the United States Government and the Shawnigan Water and Power Co., whereby the former has undertaken to lend funds to the latter to provide plant for the manufacture of acetic acid. Then, in connection with the American shell orders, it is said that the United States ordnance department undertakes to provide a considerable part of the raw material. Presumably Canada is not required to pay cash for such imports of raw material—perhaps it is the case that the settlement therefor will be deducted from contract settlements. Thus, later in 1918, some effect of this activity should be seen in the exchange markets.

Canadian manufacturers also have shipped goods to France, Italy and Russia during the war period, but our exchange rate with these countries is merely a reflection of the rate prevailing in New York. We take the New York rates for francs or lire and adjust it for Canada according as New York funds here are at a premium or discount. All of these countries have had huge payments to make to the United States in settlement of their trade balances; and their currencies have, therefore, ruled at a discount in comparison with the American. As regards the franc exchange, however, some think it will move in France's favor when the American armies overseas reach larger dimensions. At present the American dollar will buy 5.71 francs, the legal par being 5.18⅛. If the exchange moves in France's favor, the quotation, of course, will fall towards the legal par.

RUBBER MILL DRIVE.

Speaking illustrations is the main feature of a booklet just issued by the Link-Belt Company on "The Ideal Drive for Rubber Mill Machinery." Over half the book is taken up with these pictures, which are admirably reproduced, showing link-belt silent chain drives in operation. Descriptive matter, explaining the application of the Link-Belt silent chain drive in rubber mills is prefaced to the illustrations.

Washing Facilities for Industrial Plants

The Manufacturer Who Looks for Maximum Production and Does Not Give Careful Consideration to the Physical and Mental Conditions of His Workers Will Not Secure What He Is Seeking

By A. C. CARRUTHERS

(Reprinted from "Safety Engineering")

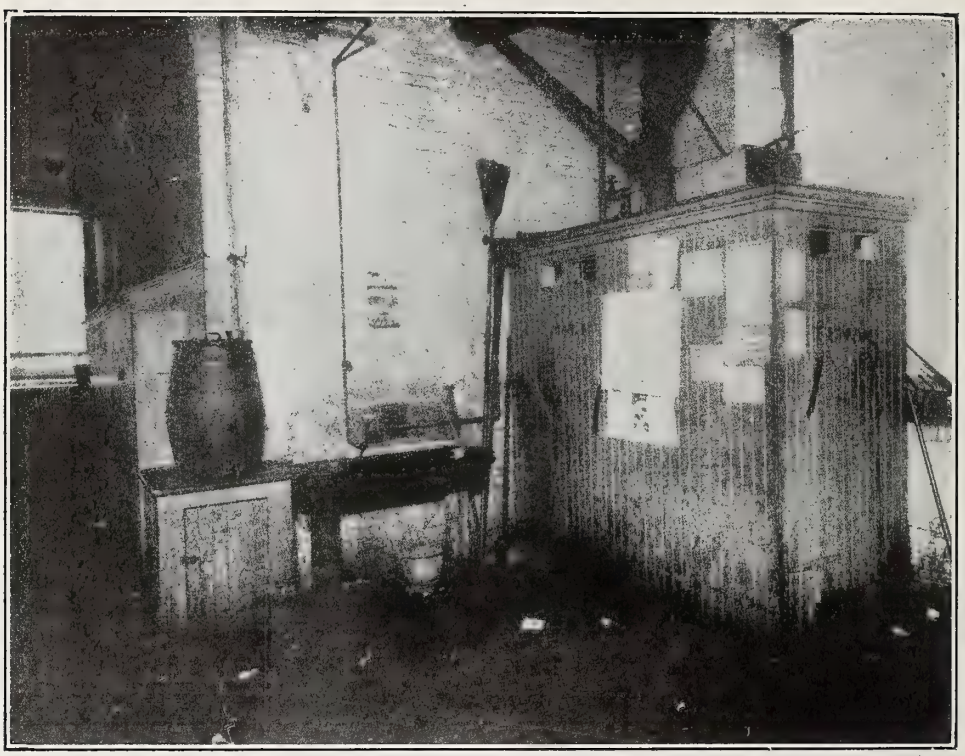


Fig. 1.—A menace to the health of every user

NO industrial employer should undervalue the important part which labor constitutes in his business. To secure and maintain the highest efficiency among his employees, is the constant effort of the progressive manufacturer to-day. The production of the industrial worker depends upon his efficiency, and his efficiency depends upon his physical and mental condition. It is maintaining the physical and mental condition of industrial workers in the highest degree, that secures maximum production.

The manufacturer who looks for maximum production and who does not give careful consideration to the physical and mental condition of his workers will not secure what he is seeking. Industrial America has been a long time realizing this, but among the most successful and progressive concerns to-day, the importance of these vital factors is considered primary. In other words, it is impossible to obtain the same efficiency from a man whose health is impaired, who works with a dissatisfied mind, as will be obtained from the man who works with a contented mind and a strong healthy body. The old idea of giving a man a machine and so much raw material, and telling him to "get busy" and then expect a maximum output, has long been discarded as poor manufacturing practice. There is much more to be considered than the man, the machine and the material. First of all, the industrial worker spends anywhere from 7 to 10 hours a day in the factory, and a man needs just as much pure air, good light and sunshine during his working hours to keep him in health, as he needs in his hours of recreation. An atmosphere charged with dust, smoke or fumes is unfit for human respiration. Sanitary, well ventilated toilets are a necessity. When the worker wants to wash the dirt and grime from his hands, arms and face, he needs clean water in abundance and washing facilities which will invite their use. He needs a steel locker in which to place his clothes, etc., while he is working in his overalls. In the summer, and under conditions where workers are subject to great heat, there should be provided suitable shower baths which clean and refresh the wearied worker. Everywhere, whether it be in the factory, washrooms or toilets, there should be an ample supply of fresh air and light.

These several necessities were once considered luxuries, and few plants gave them much consideration, but to-day we know they are necessities, just as essential in maintaining maximum output as is fuel for the furnaces, water for the boilers, and power for the machines. A man working 8 or 9 hours a day in an industrial plant for 5 or 6 days in the week, can no more maintain his vigor of mind and body without regard being given to his welfare in this respect, than can a machine maintain its efficiency minus lubrication. The manufacturer who tries to operate a plant and get the utmost out of his workers without providing these several necessities for them, might just as well try to operate the

steam engine without coal in the furnace. It can't be done. Some of the largest manufacturing plants in the United States which show a high degree of efficiency among their many thousands of employees, have expended large sums of money in providing washing facilities, proper toilets, shower baths, lighting and ventilation almost equaling that found in the large modern hotels and clubs. They have found that these large appropriations have been a good investment, and the United States Steel Corporation, which has spent far more than any other employer in the United States for such equipment, is well satisfied from a dollars and cents standpoint with the money it has expended for these purposes. It returns in increased output because the health of their employees is maintained in so satisfactory a condition that they are capable of greater exertion because of the healthful and sanitary conditions provided for them.



Fig. 2.—Such facilities are totally unfit and endanger the health of users

We will now consider the importance of washing facilities. A light, healthy washroom, with ample facilities for the men working in the factory to obtain clean water in satisfactory lavatories or troughs, is an invitation for them to use such conveniences daily, and this habit of thoroughly washing off the dirt and grime of the factory is one of the important requirements for maintaining the health of the worker. It refreshes him after the day's work. It cleanses him and removes the cause of disease, namely, dirt, germs and other impurities which are injurious to the health. He feels better, and under this healthy impulse, he is less likely to need the false stimulation of drink. To encourage cleanly habits by means of an attractive washroom equipped with the latest sanitary appliances, is a profitable policy for every industrial plant. It starts in the minds of the workers a desire for cleanliness and dislike for uncleanliness. This condition of the mind has many forms of expression, all of which are to the advantage both of the man himself and the employer. The advantage of coming out of the washroom or shower, wholesome and clean with all dirt removed, demonstrates itself in the healthy, clean, refreshing feeling which the worker enjoys. He will see the benefits of cleanliness; for instance in the workshop, which will make him inclined to be a booster for keeping the factory clean and orderly. He will advocate cleanliness among his fellow workers, if for no other reason than the selfish one; because dirty surroundings will be objectionable to him. He will appreciate what the employer has done in providing such excellent means for his welfare and comfort, and his appreciation will be expressed in greater output.

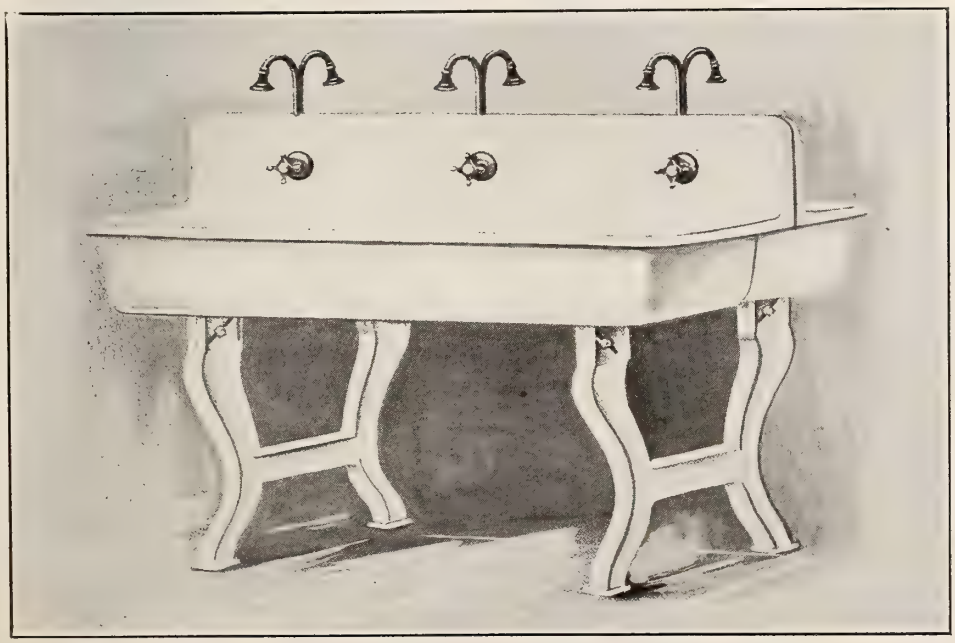


Fig. 3.—Latest type of modern sanitary washing fixture

Fig. 1 shows an illustration of what one manufacturer considered adequate facilities for drinking, washing and toilet requirements! This employer needs a course in the decent and safe requirements of human beings. Look at the drinking facilities. Here we see a barrel with a removable top upon which rests that mighty germ carrier, the drinking cup, a drop from which, under the microscope, would probably show it crowded with a miscellaneous assortment of disease-breeding germs. That drinking cup alone endangers the health of everyone who uses it. Look at the washing facilities. Look

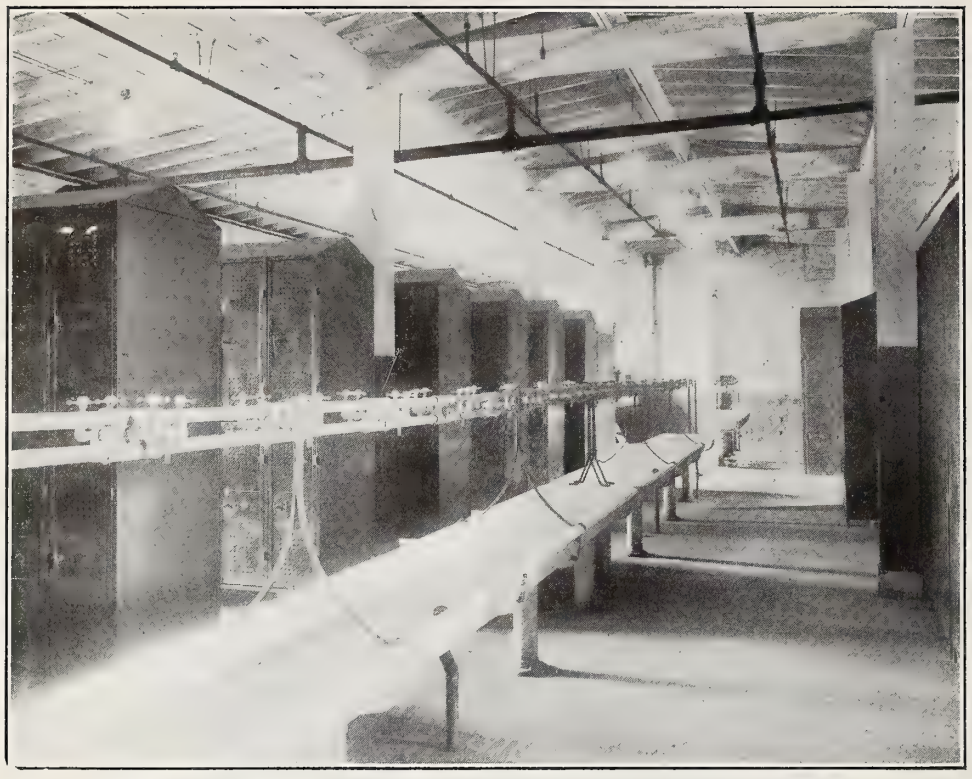


Fig. 4.—Sanitary washing facilities in Commonwealth Steel Co.

at the condition of the floor, and finally look at the toilet facilities! Could anything be more revolting than this miserable corner of a cellar to any person of self-respect? To utilize such facilities, the victim jeopardizes his or her health. How can any man expect his employees to use such an apology for necessary facilities, and retain any thought of respect for him or interest in the welfare of his business? This picture illustrates one of the worst investments which any employer can make, and which will undoubtedly cause him a loss every working day due to the lowering of the health standard of his employees.

Fig. 2 is another example of what no employer with any regard for the comfort and well being of his employees will permit to exist for a moment in his establishment. This employer also needs information on the elementary requirements of employees, and the prevention of disease among employees. From the illustration it is clearly evident that he is well versed in the spread of disease and ill-health among his employees, for he has provided the means very fully for accomplishing this result.

Modern Facilities.

Fig. 3 shows the latest design of washing facilities for use in industrial plants. The goose-neck can be arranged at a proper height so the worker can wash both head and neck conveniently. The rose-spray outlet prevents spatter, so the worker in using this type of installation can wash his head and neck without wetting his clothes. The majority of installations of this type are so arranged that the user can temper the water to suit his convenience. This type of installation meets the requirements of sanitation, because it permits the user to wash only from the flowing stream. "Wash in running water" should be the maxim in every industrial wash-room. This is the type of installation which proves a good investment, because it contributes to maintaining the health of the employee, which means increased efficiency and increased output.

Fig. 4 shows a wash-room in the plant of the Commonwealth Steel Company, Granite City, Ill. Note how the water-supply pipes have been raised to a convenient height to allow the men to wash the head and neck under running water. This wash-room is an excellent example of modern industrial requirements. It is furnished with a concrete floor which secures cleanliness. The washing facilities are modern and meet sanitary requirements. Automatic sprinkler protection has been installed to protect the building from fire, the upper part of the building is white, which, in connection with the electric light, furnishes excellent lighting. There are conveniently-arranged lockers for the men's clothing. A man can enter this room, whose face and hands are covered with the dirt and dust which he collects in his work; he can here take a thorough wash, change his clothes and leave the room feeling and looking far different from when he entered.

This wash-room expresses how the Commonwealth Steel Company has striven to safeguard the health of its employees and encourage habits of cleanliness. No employee can use this room daily without being impressed with the interest which his employer has displayed in his welfare and comfort by this wise investment. Experience has shown that the use of such conveniences as these tends to improve industrial labor in habits of cleanliness. A man who has been accustomed to such conveniences will not be content with unsatisfactory, unsuitable, unhealthy washing facilities. By using such a wash-room as is shown in Fig. 4, the user receives an education in cleanliness, and will learn by experience the benefits of health and comfort which such facilities as these furnish. A contented mind in a healthy body is an asset to both the workman and his employer, and the means for securing and maintaining this important condition in industry can be reached by furnishing the means of cleanliness.

LATE NEWS ITEMS.

The Gananoque Spring & Axle Co., Gananoque, will rebuild their axle-hammer shop recently destroyed by fire.

John Bertram, Sons & Co., Dundas, will erect a one-story brick shell factory, to cost $150,000.

Hillis & Son, Halifax, intend building a new foundry on Kempt Road.

The Department of Public Works announces the intention of the Government to establish a steel shipbuilding plant at Halifax.

Riordon Pulp & Paper Co. will build a new power plant at Merritton, Ont.

The H. K. Wampole Co., Perth, have purchased considerable property and plan extensive building operations this year.

The New England Fish Co., Vancouver, have purchased the plant of the Ucluelet Herring Co., Port Alberni.

Work on the new plant for the Dominion Textile Co. at St. Lambert, Province of Quebec, will be started this summer.

Functions of Canadian Railway War Board

An Authorized Statement of Its History, Aims, Methods, and Achievements Up-to-Date. Prepared Specially for *Industrial Canada*

By BRITTON B. COOKE

WAR has reversed the attitude of the public toward big business organizations. People who formerly feared the "Trusts" are now afraid of the small industrial units wherever such units are engaged in public service. The efficiency of the great organization, once dreaded, is now demanded. Where competition was formerly insisted upon at any and all costs combination is now the cry. In the United States the same people who worked day in and day out to prevent the railways from co-operating and becoming masters of the transportation situation are now feverishly endeavoring to remove the results of that policy. In other words, public consciousness has been so quickened that the economic waste involved under our old competitive systems is now appreciated by almost everyone. The power of government has been so stimulated and extended by this change in the public mind that the fear of great business organizations usurping and abusing power has given place to confidence in the power of the people to meet any such contingency. Nation-wide organization, concentration of public services, is everywhere demanded.

The formation of the Canadian Railway Association for National Defence arose out of this movement for co-ordinating the public services of the Dominion. In the Department of Militia and Defence the War Purchasing Commission was born, and the Imperial Munitions Board. Under the direction of the late C. C. James in the Department of Agriculture, a comprehensive plan to increase farm production was carried out successfully. The newspapers were, at least in a sense, co-ordinated through the Ottawa censorship. Under the Food Controllership the price of wheat was fixed, retailers' "spreads" were regulated, the hitherto wasteful and casual methods of distributing Canadian fish to Canadian people were corrected, and other edicts tending to eliminate wasteful competition were placed on the statute books. In the realm of public financing the haphazard marketing of War Loans was replaced by the co-ordinated methods of the Victory Loan. On every hand, and perhaps more noticeably in the Food Controller's department, the menace of competitive methods was seen in a very clear light. Confidence in the power of the State to control anything and everything in the interests of safety made men not only unafraid of centralization but eager for it. The only regret in some quarters was that it could not be carried further so as, for example, to standardize farming methods or to eliminate the unnecessary and costly numbers of retailers in our cities.

II

The co-ordination of Canadian railways under the Canadian Railway War Board in October, 1917, was a step in agreement with this general movement. It is only fair to say that the record of Canadian roads up to this time had been fairly good, happier in fact than the record of roads either in England or in the United States: "I have discussed what the railways in Canada have done since the beginning of the war," said Sir Robert Borden, addressing a delegation from Ontario municipalities in Ottawa in February, "with some of the leading men at the head of American railways, and I have received only one estimate from them: it is that they are perfectly astonished with what Canadian railways have done under the strain of war." Of course the Canadian railways had been operating under more favorable circumstances than the railways of the United States or England. The long and narrow shape of our country had made it unnecessary for Canada to acquire those roundabout railway routes which caused indirect routing—one of the most serious evils known under the competitive system in England and in the United States. Real indirect routing existed before the war in only one part of Canada, western Ontario, and is being eliminated there under new routing and tariff arrangements.

Of greater importance is the fact that Canadian railroad men had been long accustomed to handling traffic conditions over the entire stretch of Canadian territory. With three main systems designed on nation-wide lines it was comparatively easy, when war broke out, to co-ordinate the remaining fifty-seven smaller Canadian roads. Exceptional weather conditions in the winter of 1916-17 had caused some congestion in Ontario. Labor shortage had slowed up the making of repairs on engines and cars, had increased the difficulty of maintaining the roadbeds in proper condition and had made it more difficult to keep terminals in good condition during stormy weather. The record of the roads remained, nevertheless, fairly good.

III

With the entry of the United States into the war, transportation difficulties and fuel shortage developed. In an effort to co-ordinate the 700 American railways a Railway War Board was formed. Perhaps because no one of these roads was nation-wide in its organization, perhaps on account of the conflicting State and Federal legislation with which they had been embarrassed for some years, this American War Board was finally replaced by Mr. McAdoo's organization. But the fuel shortage in the United States made it imperative for Canada to do everything possible to economize in this raw material for which she is so largely dependent on American mines. The Canadian Railway War Board was formed primarily, therefore, to give formal and official effect to the spirit of co-ordination which the roads had already showed, and to discover means of reducing coal consumption by a still further reduction in train service.

IV

The presidents of the Canadian railways, on the suggestion of the Government, formed among themselves an Executive Committee. Seven vice-presidents in Charge of Operation were then grouped together as an Administrative Committee under the chairmanship of U. E. Gillen, vice-president of the Grand Trunk Railway. W. M. Neal, one of the most able of the younger operating officials in the country, was taken from a high position in the Car Service Department of a member road and placed in charge of the executive offices of the Association. The work of these offices has been to keep in close touch with actual operating conditions on all lines, to act as a clearing-house for inter-road arrangements, listening on the one hand to the troubles of this road or that

in such-and-such a section, and on the other hand arranging assistance from other roads which might have a surplus available. The Administrative Committee under Mr. Gillen meet frequently in the offices in the Eastern Townships Bank Building, Montreal. At such meetings all problems which have arisen since the last meeting and have not been settled by the General Secretary on his own initiative, or after telegraphic or personal consultation with the members, are laid upon the table and solutions found after discussion. Orders issued by the General Secretary are formally confirmed. New proposals for improving service or curtailing unnecessary use of equipment, labor or fuel, are discussed and decisions put into effect by the General Secretary. Each member of the Administrative Committee is responsible for the obedience of his own road to these orders under the authority of his own chief who, in turn is a member of the Executive Committee.

Sub-Committee at Winnipeg.

In order to deal with western Canadian conditions the Administrative Committee delegated some of its powers to "The Administrative Sub-Committee" in Winnipeg. This Committee has for its chairman Grant Hall, Vice-President and General Manager of the C.P.R. western lines, together with M. H. McLeod, General Manager of the C.N.R.; W. P. Hinton, Vice-President and General Manager of the G.T.P., and F. P. Brady, General Manager of the C.G.R. This committee, co-operating with the senior committee in Montreal, has not only carried out reductions in fuel consumption by curtailing passenger service and enforcing other methods of saving coal, but it has to its special credit the solving or amelioration of special and acute conditions such as the threatened coal shortage due to labor troubles in western mines, and the water famine due, in some parts of the country to the extreme weather. It assisted the Americans to move grain from St. Paul and Minneapolis by supplying cars from the Canadian roads. It facilitated in the movement of wheat from Canadian points as well, and maintained the heavy traffic between British Columbia and eastern Canada uninterrupted.

Both the Administrative Committee and the Administrative Sub-committee are assisted by sub-committees charged with special advisory work. Thus there is the Commission on Car Service in Montreal and its western equivalent, the Sub-committee on Car Service in Winnipeg; the Committees on Passenger Transportation, east and west; the Committee on Tariffs and Statistics, Montreal, and the Committee on Freight Traffic in Winnipeg. One committee which has no western equivalent is the Sub-committee on Military Movements, which is really under the authority of the Passenger Transportation Committee in Montreal. Its duty is to see that military trains are handled in the shortest possible time and over the shortest possible route irrespective of which carrier originated the business. Their work is, of course, in accord with the military authorities at Ottawa. Splitting and re-routing of this class of traffic is thus simplified.

V

In the four months of its existence the Canadian Railway War Board has achieved no sensational alteration in Canadian railway conditions, but it has improved and in many cases perfected the measures which the individual railways already had in hand. In some matters it has completely changed the practices previously existing. The detention of 22,000 Canadian freight cars in foreign railway tangles was dealt with by a campaign in Ottawa, Washington and New York. The total number of cars thus alienated has not been recovered, but the balance due Canada has been reduced to something like 17,000, *and has been prevented from becoming larger.* To offset the shortage of cars due to increased traffic demands and lack of labor and materials to build new equipment, the Board has carried on an effective campaign for quicker handling and heavier loading in quarters where the best results were to be looked for. The method of handling "Less Than Carload Lots" of merchandise has been improved as announced in one of the Board's recent bulletins. The new method saves car-time materially. To the reductions in passenger train service, which had already been in effect before the Board was formed, further reductions have been added. The annual saving of coal due to this step will amount to about 650,000 tons per annum when the latest changes go into effect (February 24th and March 3rd.) This reduction in passenger trains means not only a saving of coal but it releases equipment for freight movement and saves to the freight train the time which it formerly lost whenever it had to meet or be passed by the passenger train. Some of this passenger train mileage reduction has been arranged by taking off local trains and giving their work to the fast through trains. This has meant some inconvenience for travellers, but by slowing down the speed of the fast trains has actually saved still further quantities of coal. By adding 45 minutes to the time of one fast train running between London and Detroit, two tons of coal per trip were saved.

Director of Overseas Transport.

Sudden changes in the requirements of the Officer in Charge of Overseas Export, Sir Arthur Harris, have also been met much more satisfactorily since the creation of the Board. Previous to that time Sir Arthur Harris had dealt with several railroads and had done so, in fact, with very great success. Since then, however, the Director of Overseas Transport has had the advantage of being able to deal with a single office: that of the Canadian Railway War Board. An unexpected demand for wheat from the Canadian west sometimes found the road thus called upon short of suitable cars. To-day through the Railway War Board no such question can long remain unanswered. The Board charges itself with the business of providing cars to the utmost capacity of the combined Canadian railways.

In the case of congestion at the Niagara frontier the Board appointed an officer with authority to route this incoming traffic over any line that was available, irrespective of ownership or previous routing. In a single period of six weeks, notwithstanding very bad weather, the record of car movement from the frontier was increased by almost 5,000 cars.

VI

This summarizes the history, the constitution, the aims, the methods and the achievements of the Canadian Railway War Board. It is an entirely voluntary Association and depends for the enforcement of its recommendations upon their suitability to the public need and the support of public opinion. With the recent appointment of Mr. A. E. Warren, Chief Operating Officer of the Department of Railways and Canals at Ottawa, the Canadian Government lines will have additional representation and the link between the Board and the Government will be strengthened. In all its work the Board has a single purpose: to see that the railways of Canada render a maximum service during this time of stress.

Why Canada Should Cultivate South America

The Dominion's Greatest Trade Opportunity Lies in the Southern Continent, for Lacking Iron and Coal, the Essentials of Modern Industry, the Republics Must Buy Large Quantities of Manufactured Articles Abroad

By E. A. ROSS

Foreign Trade Representative, Demerara, British Guiana

BEFORE the war ends, Canada will have a national debt of a billion and more dollars on which to pay interest. Added to this, she must provide for a heavy pension bill, and be able not only to absorb the number of wounded soldiers into her industrial life, but also to provide work for a large number of wounded returned soldiers of varying degrees of health.

The advent of peace will shut down the munition business, which is the principal item of manufacture to-day, and after some orders for reconstruction purposes—stagnation!

This can be offset by exporting a large volume of manufactured articles. Why manufactured articles? Because with peace will come the opening of the various agricultural markets—such as Russia, India and Australia, to the world, with a lessened demand from Canada; because, even assuming the unwounded returned soldiers will take up agriculture, those who are incapable of doing this strenuous work must be employed in manufacturing; because Canada has trained and developed a huge army of skilled artisans overnight—on munition making. These skilled men and women are an invaluable asset to the nation, and to allow them to go back to their former inefficient state would be to commit an economic waste of great magnitude; because the profit of manufacturing should accrue to the nation to pay her war debt, instead of allowing her enormous mineral wealth to be exported in a crude state; because, with her severe climate, Canada should develop herself into a manufacturing nation, as outdoor work during the winter months must always be limited.

Where, then, must the market for these exports be? Canada cannot hope to sell much to Russia owing to the obscure financial outlook, possible German domination, proximity of European and Japanese manufacturers, and shortage of tonnage. Neither to China, because of Japanese and American control; nor to Africa, for obvious reasons.

The market for these exports is South America, South America, South America. In area, South America stands in proportion to the North American Continent as 7 is to 9, and has a population of about 60 millions. She is wealthy, and does not need much of our wheat, etc.; but, lacking the essentials of modern industry—iron and coal—she is compelled to buy a large quantity of manufactured articles abroad.

Exclusive of Central America and the West Indies, which import over 305 millions annually, South America imports 1,020,000,000 dollars a year, a large percentage of which Canada can supply, because the principal items are machinery, manufactured articles and textiles.

Canada requires this market to sustain her industrial life, both during the transitional period and after, but is not endeavoring to develop it at all. A market cannot be developed in a day or without initial expense and pioneer work, and if she is not prepared to do the developing and pioneer work, how can she expect to market her goods? We do not want to worship at the German altar continually, but we must admit her efficiency in developing markets for her products.

A little planning before selecting the method to be employed in the export campaign will assist greatly. There are two selling plans which can be adopted successfully—Travelling Salesmen and Foreign Representatives. The first involves a large expenditure of money to secure the best results, as salesmen must first learn the languages of the countries in which they are going after business, and spend some time in studying conditions, tariffs, etc., and it therefore is only adapted to lines for which the sales are certain to be of a very large volume. The second plan seems feasible for the manufacturer whose resources are smaller, and whose line is one that would not justify a very large initial expense to reach his buyers.

Capable agents, who know the habits and customs of the people, must be sent, and the territory properly covered, for results to be obtained; the initial expense incurred will be negligible to the importance and value of this market.

If Canadian manufacturers realize the national debt we are piling up, the importance of having these markets as essential to their future, they must get busy—now. The United States manufacturers, realizing this, are sending their own travellers down, as well as appointing representatives in all the principal South American centres. They are also spending a considerable amount of money to get the business, both individually and through their organizations, and have gone so far as to compel their clerks to learn the Spanish language and make a study of export trade, at the expense of the principals.

Banking.—The credits of these markets are good, in most cases buyers purchasing cash against documents on open letter of credit, or through their New York brokers, who confirm their orders and pay for same quite often before the goods are on the docks. The Royal Bank of Canada is well established in Central America, the West Indies and some parts of South America; the International Banking Corporation, founded expressly for this trade, is also established throughout South America.

Shipping.—Shipping facilities to all these points are still good, several lines maintaining regular sailings both from New York and Halifax. The steamers now being built for the Canadian Government could not be better utilized than in this important trade, as they have already subsidized a line to the West Indies.

This century belongs to Canada and South America. The South American countries are developing rapidly, and taking good care of themselves, under stable government. Canada in this century must not only develop her enormous untilled acres, but must also develop her manufacturing industries, to maintain the favorable trade balance of the last couple of years.

This is necessary to prevent severe contraction in business during the period immediately following peace, and before business becomes normal.

Also, the South American markets must be developed for the future benefit of Canada, whose population will have to depend in the future as much on manufacturing as on agriculture. So let the slogan be *Trade With South America—And Now.*

Workmen's Compensation Board Under Fire

Royal Commission of Investigation Appointed by the Government of Manitoba has Found that the Administration of the Act in that Province has been Deficient and Extravagant and Recommends Reforms

ON January 5, the Government of Manitoba appointed a Commission under the great seal of the Province to inquire into the operations of the Workmen's Compensation Board. After spending some time in taking evidence, this commission, which consisted of W. S. Fallis, A. R. D. Paterson and Arthur W. Puttee, brought in a report in which under various heads it was found that the administration of the Act was inefficient and extravagant. As the subject of workmen's compensation is of general importance, no apology is offered for the reproduction of the report of the Commission practically in full. The report falls under six headings as follows:—

(a) Any order respecting insurance rates made by the said Board and the reasons therefor.

On December 20, 1917, the Board issued an order bearing a fac-simile of the signature of the Commissioner, Mr. Herbert G. Wilson, raising all rates of insurance 10 per cent., giving as the reason therefor the urgent request of the insuring companies to cover increased overhead cost, due in a large measure to war taxes, etc. On December 27, after protest had been made on behalf of employers, this order was rescinded. Mr. Wilson was unable to produce original orders in either case, but accepted the circular letters as being official and the responsibility for their issuance. The evidence adduced on this subject shows that matters concerning insurance rates were left in charge of the Assistant Commissioner, Mr. William Neill, and that the Commissioner acted entirely on his assistant's advice. The origin of the increase appears to have been a letter written by the Assistant Commissioner, on his own initiative, to the Secretary of the Western Casualty Underwriters' Association of Toronto, under date of November 29, 1917, in which he asked "Whether it is the intention of the insurance companies writing policies in this Province to submit revised rates for next year." An answer dated December 12, 1917, was received, in which was stated that the Act had not been in force a sufficient length of time to anticipate the result of writing the business, but the companies felt strongly that in view of Government taxes and the increased overhead charges in general, they would be warranted in asking approval of a general increase of ten per cent. on the present rates and submitted this request for consideration.

Rates Raised Unadvisedly.

Without investigation of the equity of the claim of increased overhead expenses and taxes on the part of the insurance companies, without further notice to the insuring companies or the employers, and without compliance with the requirements of Sub-section 6, Section 71 of the Workmen's Compensation Act as to a hearing, the Assistant Commissioner drafted a circular raising all rates ten per cent., and this was issued under the approval of the Commissioner.

It must be noted that while the reason given in the circular issued by the Board is the "urgent request" of the insuring companies, the letter from the companies' representative was only a request for consideration.

In his evidence defending the issuance of this order the Commissioner stated that he had some recollection of being told there was an understanding as to a revision of rates being made at the end of the year 1917, but the source of his information was vague, except that the matter had been mentioned by Mr. Curle or Mr. Neill, and no evidence was produced to show there was such an understanding.

Mr. Wilson also frankly admitted that had he known as much about the matter then as he does now, the order increasing rates would not have been issued, which statement in itself shows that little thought or consideration had been given to an important matter, which involved the annual payment of a good many thousand dollars by the employers.

The defence of his action offered by the Assistant Commissioner to the effect that some of the companies had expressed dissatisfaction with the rates and he feared they would all refuse to accept risks in the Province unless their request for an increase was granted, cannot be taken seriously and is contraverted by the evidence of managers of two insurance companies, members of the Western Casualty Underwriters' Association, who, while claiming that the request for an increase should receive consideration, admitted their surprise that it was granted without further correspondence or a hearing.

Employers Not Heard.

While Mr. Wilson, as Commissioner, accepted responsibility for the action of the Assistant Commissioner, the attitude of the latter must be strongly condemned for the arbitrary manner in which he delegated to himself such an important matter as a general increase in rates of insurance without hearing the employers, who were vitally interested and without placing all the facts and requirements of the Act before the Commissioner prior to issuing the order.

In this connection it may be pointed out that while it is common knowledge as to the increase of overhead and operating expenses in all lines of business, the insurance rates on risks assumed under the Workmen's Compensation Act being based on a percentage of the pay-roll of the industry covered by the policy, the premiums have been automatically increased by the rise in wage scale, and as a proportion of the rate is undoubtedly made to apply to overhead charges on the part of the underwriter, it is evident that this class of insurance automatically takes care of itself in the matter of this expense.

Your Commissioners find that there was no investigation into the facts in connection with the reasons advanced for the general increase in rate and that there was no compliance on the part of the Board with the requirements of Subsection 6 of Section 71 of the Workmen's Compensation Act as to a hearing, so that the order making a general increase of rates was not justified.

Other orders issued regarding insurance rates were in connection with individual industries, and as the experience of this Board is insufficient, it is not possible to pass judgment as to their fairness, but in one case (Winnipeg Aqueduct Company), the evidence shows that the former Commissioner (J. H. Curle) ordered rates considerably in excess of the figures at which an Insurance Company offered to ac-

cept the risk, and the experience so far would appear to show the rate ordered as being excessive.

Officers and Servants.

(b) The appointment of any officers and servants of the said Board, their salaries and duties and the necessity for same.

The evidence shows a want of organizing ability on the part of the administration and that the staff is unduly large, while the salaries paid in some cases are out of proportion to the responsibility and work performed.

The necessity for the appointment of an assistant Commissioner is not apparent; much of the work that has, in the past, been entrusted to this official rightfully belongs to the Commissioner, while the other duties performed by him could be readily taken over by an efficient secretary.

The services of the statistician, whose work is purely clerical at the present time, are also admittedly superfluous, while one well qualified inspector should be sufficient under present conditions.

By a simplification of the system and forms now in use there is no doubt that the services of other employees could be dispensed with, so that a considerable saving in expense might be made without interfering with efficient administration of the Workmen's Compensation Act.

It is also questionable whether the daily attendance of a Medical Officer is necessary at present, and in this connection it should be pointed out that medical attendance is a proper charge against the individual case of accident and not against the general expense of administration, which is the method adopted at the present time.

Offices and Equipment.

(c) The offices, equipment, and appliances rented, purchased or procured or proposed to be procured by the said Board and the necessity therefor.

Offices. The Board are occupying and have under lease to November 1, 1920, 5,040 square feet on the seventh floor of the Paris Building at an annual rental of $5,040.00, with an option to December 31, 1918, of a lease for a similar period and on the same terms covering about 2,036 square feet of adjoining space, which would make a total annual rental of $7,076.00. It appears that the additional space has been laid out with a view to exercising the option in that partitions forming medical officer's, nurses', waiting and X-ray rooms have been erected, and fixed stationery cabinets provided in this space. In the event of the option not being taken up these partitions and cabinets will have to be removed and re-erected at a heavy expense to the Board.

The evidence as to this matter shows that the space now under lease is probably double what is necessary and that a great saving might have been effected by renting smaller offices in less valuable property, where the business of the Board could have been carried on with equal facility, so that it does not appear that good judgment has been exercised either in the matter of leasing or the extravagant arrangement of private offices.

Your Commissioners would recommend that such part of the premises leased and under option as are not actually necessary should be sub-let as soon as possible, thereby cutting down an unnecessarily heavy part of the overhead expense.

Equipment and Appliances. It is evident that economy was not practised in purchasing the equipment and that a saving might easily have been effected in both the quantity and quality of the office furniture and other appliances, some of which would appear to be superfluous and much in advance of present requirements.

The installation of costly electric lights and the building of expensive fixed stationery cabinets in the space under option seems unwise, while the principal items proposed to be purchased or rented, consisting of an X-ray outfit, two automobiles and a heavy increase in telephone equipment, are not warranted as present necessities, although in the opinion of your Commissioners, the purchase of one small automobile might prove an economy in permitting closer supervision of accidents and claimants.

The whole evidence shows an apparent disregard of economy in the establishment of a Workmen's Compensation Board, which, like any other organization, should have been built up gradually as necessity demanded.

Work Performed.

(d) The work performed by the Commissioner, Assistant Commissioner and other officers and servants of the Board.

Commissioner. When giving evidence Mr. Wilson stated that his time was so fully taken up with judicial duties in administration of the Act, that matters in connection with insurance rates and office management were left in charge of the Assistant Commissioner, upon whose advice Mr. Wilson relied, and from the slight knowledge of the system and office work shown by Mr. Wilson when under examination, there was an evident lack of investigation by him to find out whether that part of the administration was being operated satisfactorily and economically. While in several claims, of which records were produced, there did not appear to be a full investigation into the surrounding facts, so that there is some cause for complaint of arbitrary decisions, on the whole the claim adjustments have been fairly satisfactory, but your Commissioners are unable to admit that the judicial duties in connection with them should have taken up so much of Mr. Wilson's time that he could not have kept himself well informed as to the expenditures and other important duties in connection with the operations of the Board.

Assistant Commissioner. Before coming to Winnipeg Mr. Neill was employed by the Ontario Workmen's Compensation Board, and it is evident that his idea was to instal the same system in Manitoba. As the Ontario Board was operating mutual insurance, guaranteed by the State, while the Manitoba Board's duties can be best described as those of an Adjustment and Rating Bureau, the functions of the two do not by any means correspond, with the result that an unnecessarily elaborate system has been introduced, calling for statistical information and complicated forms, which have entailed the employment of more clerks and stenographers than are necessary.

In his evidence Mr. Neill gave few facts or figures to warrant the heavy expenditures authorized by him or on his advice and could only deal with matters in a general way, so that the explanations offered were by no means satisfactory. One instance, which may be given, is the proposed expenditure for salaries and travelling expenses of pay-roll auditors, which it was admitted by the Commissioner would be in excess of any financial benefit to be gained by the Board through their work. As the insurance companies are interested to the extent of 92½ per cent. of the premiums as against the Board's 7½ per cent., it would look as if it might be safely left to the companies to look after the audit of pay-rolls in their own interest, while the employers carrying their own insurance are limited to large public service corporations and civic bodies all subject to a running audit, and the declaration of the officials called for by the Act should

be sufficient guarantee of the correctness of the figures. Several other instances of evident want of forethought in expenditure were demonstrated, while it was admitted that there was no attempt to limit the expense to the 7½ per cent. of the premiums as contemplated by the Act, and practically the only excuse offered was that the outlay was necessary to successful administration or in anticipation of great expansion.

While there is no direct evidence on the subject, a shade of suspicion undoubtedly exists that in the handling of claimants, the officials and employees of the Board, from Mr. Neill down, have not extended the courteous and sympathetic treatment which might be expected and that would be conducive to bringing about the friendly feeling that should be the result of efficient administration of the Act.

Your Commissioners feel that while there is no doubt as to the intention of Mr. Neill to act in the best interests of the Board from his viewpoint, a number of his acts show lack of judgment and extravagance, which have resulted in a loss of confidence in the whole administration on the part of many of the employers and insurance companies interested.

Attention must also be called to the heavy estimate of administration expenditure for the year 1918, amounting to about $75,000.00, for which no reasonable explanation could be given by either the Commissioner or Assistant Commissioner, and while the figures were at first defended it was afterwards explained that the estimate had been placed at the maximum figure, and that the actual expenditure should not exceed $55,000.00. Your Commissioners cannot help feeling that a lack of ability to organize the Compensation Board on an economical and efficient basis has been clearly shown by these unduly extravagant estimates, which are not justified by present conditions or reasonable hopes of future expansion.

It should also be pointed out that while two inspectors are employed there has evidently been some laxity in the matter of inspection and following up of claims, which is most necessary both for the protection of claimants and insurers, and your Commissioners do not feel that this point has received the attention it deserved.

The Secretary and other employees, under the direct orders of the Assistant Commissioner, simply carried out the system as laid down, and there appears to be little criticism as to their work.

Nature of the Staff.

(e) Generally the nature of the staff and offices and equipment necessary for the proper administration of the said Act.

The income of the Workmen's Compensation Board being based on a percentage of pay-rolls is naturally subject to heavy fluctuation according to the scale of wages being paid as well as to general business conditions and the number of workmen employed in the various industries, so that to keep the expenditures within the percentage of premium allowed under the Act needs most careful consideration, and economy. At the present time the wage scale is the highest ever known in Canada, so that the income is undoubtedly considerably above what can be expected under normal conditions, and it would appear desirable that if possible a reserve fund should be established at the present time, so that during periods of depression in business, when the income of the Board is reduced, there will be funds to meet expenses without calling on the revenues of the Province. In connection with this point attention should also be called to the fact that in the estimated premium income the Canadian Northern Railway shows as bearing about one-quarter of the whole, and if that road is taken over by the Dominion Government and is thus placed outside of the jurisdiction of the Board, the income to be derived from that source would cease, making a serious impairment of the administration revenue.

In order to avoid any suspicion of arbitrary action and as a means of check on the expenditures and adjustment of claims, your Commissioners recommend that the Board should consist of two directors and a Commissioner. The duties of the two directors would be to act in an advisory capacity, and to pass, in meeting, on the acts of the Commissioner both as to claims and expenses. A minimum compensation of say $1,000.00 per annum to be allowed each director, and for necessary meetings over fifty per year an additional allowance of $15.00 per meeting.

Estimate of Administration.

After hearing evidence and making investigation the following is submitted as an approximate estimate of administration cost to meet present requirements of the Board and with which the work should be kept well in hand:

2 Directors	$2,000 00
1 Commissioner	6,000 00
1 Secretary	3,000 00
1 Inspector	2,100 00
1 Medical Officer (part time)	1,500 00
Accountant, Claims Clerk and General Office Staff (estimated)	6,640 00
Rent, stationery and office expense (estimated)	4,760 00
Estimated total administration cost.	$26,000 00

It will be noticed that these figures are a heavy reduction on the estimated expenditure of $55,000.00 made up by the present administration.

The premium income necessary to provide for this expenditure on the basis of 7½ per cent. allowed to the Board would be $346,666.00, and as the estimated income for the year 1918 is considerably larger it should be possible to commence the creation of the reserve fund already suggested.

While it has not heretofore been considered necessary, it would appear advisable that guarantee bonds should be given by the Commissioner, Secretary and Accountant.

Besides such alterations in the Act as may be necessary if your Commissioners' recommendations as to the reconstitution of the Board are accepted, it would appear that several other slight changes might simplify and make operations easier and the following are suggested:

Section 29—"Where a claim for compensation is made, notice of every such claim shall be given to the insurance company or other underwriter liable and to the employer, and the Board shall determine the question of the right of the workman or dependent to compensation and the amount of such compensation, subject to the provisions of this part, and shall make an order as hereinafter provided."

Complaint has been made that certain awards have been given and lump sum settlements paid by the Board before the underwriters or employers liable were notified, and that the Board was not in possession of facts that might have altered the decisions. As it would seem equitable that the employers or underwriters should have an opportunity to know the facts upon which awards against them are given and be privileged to present any evidence they may have in connection with the claim, it is suggested that Section 29 be added to and the wording changed to read:

"Where a claim for compensation is made, notice of every such claim shall be given to the insurance company or underwriter liable and to the employer, and the Board shall determine the question of the right of the workman or

dependent to compensation and the amount of such compensation for permanent, partial or total disability or for death, either by pension or lump sum settlement is awarded, the employer carrying his sum insurance, or the insurance company or underwriter liable, shall be notified by letter of the particulars of this award and shall have a right to a hearing if the award is objected to by letter within three days of receipt of notification. The time and place of hearing shall be set by the Board, but if no objections are made as provided, or the objections are overruled by the Board, an order shall be made as hereinafter provided."

Permanent Disability.

Section 30—"Where the accident causes permanent disability either total or partial, or the death of the workman, the Insurance Company or Underwriter or Employer liable, shall give to the Board such security as the Board may deem sufficient for the future payments."

The Commissioner interprets this section as making it obligatory upon the Board to take security for future payments, and as the Dominion Insurance Act compels insurance companies to deposit security in Ottawa at the end of each year for the full amount of all outstanding claims, it would appear that a hardship is being imposed upon the companies, who, besides any security for individual awards, have deposits of $5,000.00 each in the hands of the Board to cover current claims. It would therefore appear reasonable that the terms of this section should be altered to leave the matter of the necessity of calling for security to the judgment of the Board and the following wording is suggested:

"Where the accident causes permanent disability either total or partial, or the death of the workman, the Insurance Company or Underwriter or Employer liable shall, if the Board deems it necessary or advisable, give to the Board such security as the Board may deem sufficient for the future payments."

Section No. 71, Subsection No. 6.—"The Commissioner shall have power after hearing upon notice to insurance companies and underwriters filing policies with the Board under this part, by order in writing to fix just and reasonable rates to be charged by such companies or underwriters for issuing policies, to be filed under this part, and may from time to time in like manner vary the rates so fixed."

Employers Pay Premiums.

The fact that the employers pay the premiums and are vitally interested in the rates of premium appears to have been overlooked as this subsection does not call for any notice of proposed change of rates to be given to them. In order to rectify this the following wording of the subsection is proposed:

"The Board shall have the power to fix or vary rates of premium to be charged by insurance companies or underwriters by order in writing after notice to employers, whose industries may be affected by the rates under consideration, and to insurance companies and underwriters filing policies with the Board under this part and a hearing."

Sections 69 and 74. Under these sections there appears to be certain conflict with the duties of the Labor Bureau under the several Acts, and it is suggested that matters of inspection of, and improvements to, industries be left to the Labor Bureau, but arrangements should be made for the interchange of useful and necessary information.

Unfortunately, there does not seem to be the harmony that is desirable between the officials of the two departments at present, and an endeavor should be made to have them work in close co-operation, so that information valuable to both will be exchanged and duplication of work avoided.

The Assistant Commissioner has complained about the amount of his time taken up by correspondence with insurance companies, and as there seems to have been some confusion as to the proper officials of the companies with whom to deal, the following addition to the Act is proposed:

"Every insurance company or underwriter filing policies under the Act shall appoint an agent or attorney resident within the Province of Manitoba, whose name shall be registered with the Board and who shall be the official representative of the insurance company or underwriter, and to whom all necessary communications in connection with matters pertaining to the administration of the Act shall be addressed."

(f) The forms prescribed by the said Board and any regulations or rates laid down by the said Board in any way affecting employers, insurers, or employees and the reasons therefor.

The matters referred to in the above heading have already been taken up in this report, and as already stated the whole system will admit of simplification, which will naturally affect the forms and regulations, while the conditions as to insurance rates have been included under the first heading.

One very serious omission that must be pointed out is that there are no original orders on file except those relating to awards on claims and apparently copies of printed circulars are the only record. In view of the fact that the Board's functions are in many respects those of a Court, whose orders can be enforced by law, this omission might have most serious consequences and should be rectified without delay.

In conclusion your Commissioners desire to say that from evidence and general expression of opinion, it is apparent that the principles of the Workmen's Compensation Act are highly satisfactory to both the employers and workmen in that the provisions for adjustment and payment of claims tend to improve relations by the removal of controversial points, but naturally the success of the Act depends upon efficient administration.

It would appear desirable that, as far as possible, workmen engaged in other industries, not at present under the jurisdiction of the Workmen's Compensation Board, should receive the benefits conferred by the terms of the Act, and it is to be hoped that satisfactory arrangements can be made to include the workers employed on the railways operated by the Dominion Government, who at the present time are not afforded this protection.

MORE FIRES IN JANUARY.

Cold Weather and Pro-German Activities Believed Accountable for the Greater Number.

With only one fire causing loss as large as $1,000,000 in January last, the fire loss of the United States and Canada, as compiled by the *Journal of Commerce*, amounted to the huge sum of $37,575,100 as against $36,431,770 in January, 1917. This latter sum, however, included a loss of $12,000,000 by one fire, at Kingsland, N.J., whereas the larger amount in January of the current year was caused by a much greater number of fires, there having been 494, doing damage to the extent of $10,000 or upwards, as compared with only 303 of similar destructiveness in January of last year. The cold weather and pro-German activities are looked upon as being the principal causes in producing this record of havoc for the first month of this year. It is hoped that closer watchfulness will be effective in lowering the loss during the present and succeeding months.

Work of the U.S. War Industries Board

An Explanation by the Chairman of the Board, of What is Being Attempted in Co-ordinating the Work of the Government and Those Industries Which are Engaged in the Production of War Supplies

By DANIEL WILLARD

(Reprinted from "The Nation's Business")

THE War Industries Board was the result of a recommendation made by the Council of National Defence to the President last summer. Approved by him in July, the essence of it all is in one paragraph of the recommendation, and indicates as clearly as anything I could say just why the War Industries Board was appointed. The words I have in mind are:

"The Board will act as a clearing house for the war industries needs of the Government, determine the most effective ways of meeting them, and the best means and methods of increasing production, including the creation or expansion of industries demanded by the emergency; the sequence and the relative urgency of the needs of the different Government agencies; and consider price factors, and in the first instance the industrial labor aspects of problems involved, and the general questions affecting the purchase of commodities."

That is what the Board was designed to do.

Perhaps before I discuss that I should refer to the criticism that has been made of the plan, and that is that it does not approach the matter in the right way. It has been held by many—yourself, perhaps, included, possibly myself—that in order to deal with such a large subject as the industrial end of such a war as this it is necessary to have something analogous to the English Ministry of Munitions, with one man in charge of the purchasing and the placing of orders and the handling of all matters of that kind. That statement, I should say, represents the opposite view to the present programme. If that plan were to be adopted it would be necessary, first of all, to have legislation, change the existing arrangement which has grown up in times of peace.

It has been held, in criticism of the present arrangement, that there are some four or five purchasing agencies in the Army, perhaps a smaller number in the Navy, other activities like the Shipping Board, who have to make large purchases, and that it is not possible to carry on such an undertaking with so many different heads, even with the assistance of the War Industries Board, and that it would be better to abolish all those peace agencies, or in some way bring them all under one central head.

I am free to admit that to look at as a plan, as something in keeping with our ordinary business experience, that would seem to be the better programme. That is a programme that I am accustomed to working under as the chief executive of the Baltimore & Ohio Railroad. I have one purchasing agent to whom all requisitions are sent. The plan appeals to me. I think it would appeal to any business man.

There Is No Perfect Plan.

But that is not the arrangement that we have here in our form of Government. It is not what has grown up. And it will require legislation to change the existing plan and put something else in its place.

It has been said that the existing plan is not getting results and that it will be impossible for it to get satisfactory results. That may or may not be true. But I venture this assertion, that any plan that may be created is likely, in such a great emergency, and with such unusual conditions to contend with, to fall short of entire satisfaction. I might say that I was reluctant to accept the chairmanship of the War Industries Board, because I feared this plan would not afford a plan of getting satisfactory results. But when the difficulties of making a change were presented, I felt that at least it was my duty, as long as I had been asked to do it, to take hold of the situation and do what I could to make the present plan work, and that is what I am trying to do.

That is the thing that concerns us to-day. We have a machine. Can we make it work? If not, the sooner we find that out, find out definitely what we ought to have, and get it, the better for all of us.

Now, let us see what the present plan is, what we are trying to do, and where, if at all, it is likely to fail. Again, I will compare it with the English scheme. It so happened that in England some eight or nine months after the war broke out they adopted over there a scheme very much like the present War Industries Board, for the purpose of doing what we are trying to do, of co-ordinating different purchasing agencies. And they had it in effect some two or three months and found that it did not work to their satisfaction, and they changed it and substituted what is now called the Ministry of Munitions.

Central Organization.

Because that happened in England, it does not follow, necessarily, that we must pursue exactly the same course. On the contrary, when we consider the relative sizes of the two countries, I think we may perhaps well pause and ask ourselves whether such a central organization as the English could be made to work in such a large country as this. We should bear in mind that the total area of England, including Ireland, is less than one-half the size of our single State of Texas. That was the territory that was brought under the operations of the English Ministry of Munitions. Our operations are spread over the entire United States. The engineering department in our Army has its branches on the Pacific Coast, in the south, southwest, northwest, northeast—all around. It is manifest that it would be unwise to try too much centralization with such an organization as that, and try to control it all from one central body.

What we are trying to do with the War Industries Board is this: We are trying to bring together these different agencies, already established by law, most of the departments, I am glad to say, under men who seem to be inspired by loyalty and patriotism, who seem to appreciate the difficulties of the situation, who have under their control agencies, men assistants, who have been familiar with the work for years. All those agencies are there. They are at work and they are keenly alive to the situation.

It is frequently said that one reason why it will not work is because all these different departments are so much impressed with their own importance that they will not be willing to be subordinated to some other agencies and co-ordinate their efforts. That may be true in some instances. It may be true with some of the under officers. I doubt if it

is true of the heads of any of the departments. Certainly I have found no indication that that was true. They are just as anxious, just as keenly interested in the success of our armies and our navies, as you or I. It would be unjust to those men to say that they are not; anything less than that would be that they are not patriotic men, and they are.

Commodities Most Needed.

One of the difficulties, and the thing that the War Industries Board gave chief thought to at first, was to find out those particular elements or kinds of commodities that would be needed in large quantities, where the needs of the Government would very largely absorb the whole available supply, and the War Industries Board has made a list of such articles. They have arranged in many cases for prices, conditions of delivery and distribution among manufacturers, and no orders are placed for materials on this particular list unless the matter is first brought to the attention of the War Industries Board through the so-called clearance committee, which meets every morning, so that there may be a full understanding concerning the relative wants or needs of the different departments, and so that the needs may be provided for in such way as will best meet the situation and cause the least disturbance.

That practice has been worked out with reference to the more important things, such as iron and steel; some of the scarcer metals; oil and copper, aluminum, cotton goods—many things of that kind. Other items will be added to the list as time goes on.

It is not a fact, as it is sometimes believed, that with reference to those particular articles different agencies of the Government are, in an indiscriminate manner, bidding against each other and putting up the price and bringing about confusion. There may be instances where such a thing happens to-day. But I have yet to find the instance where it has had any retarding effect upon the Government's war programme.

While there are many items of the kind I have mentioned, there is an infinitely greater number of items concerning which there is no limitation, apparently no practical limitation, of supply at the present time, where the needs of one department very seldom trespass upon the needs of the other department. The Navy, for instance, concerning articles where the supply is sufficient, invites competitive bids, as it has always done. We see no particular reason why that practice should be disturbed, as long as it seems to work all right. The Quartermaster invites bids on many things where there seems to be no threatened shortage, and where to handle them in the way established by law seems to work no hardships, as yet developed, on industry, or has the effect of raising the prices which the Government is required to pay.

Some Opposition.

That whole question is under constant consideration, and just what it may be necessary for the War Industries Board to do considering things of that kind later on, the Board has itself not yet determined. But, so far as and so fast as it seems necessary, those various activities are being brought within the influence of the War Industries Board, with the entire co-operation and approval of the heads of the departments involved.

You will hear it said that there is opposition on the part of some of the departments against making such changes. That is only natural. Men whose life work, or whose work for years, has been to see that the needs of their particular department were given prime consideration, are reluctant to let go of that matter, being, as they are, charged by law with the responsibility. They are reluctant to let go until they can feel assured that there is something else to take their place that is just as good, or better; and that is a perfectly proper precaution on their part.

The present plan will work, I am now convinced, if we can have the co-operation of all the essential elements. It is claimed that that is humanly impossible, that that is too much to expect. I was inclined to think so at first. I have modified my view. I may be mistaken. At any rate, with as much at stake as anyone can have in the successful outcome of this war, with a full realization of such responsibility as may rest upon me, I am willing to give the present plan a further trial before I condemn it; and I hope that the men who are here, these committees who have been formed to co-operate with us, and help us carry out this programme, will also be willing to give the present plan a thorough trial before we demand a change, because any change that may be made will at first, at least, be an experiment. We cannot send to England, we will say, and get the proof of their plan and just simply make it effective here, because the conditions are altogether too unlike in the two countries.

That, in a general way, is how that particular matter of purchases is being handled, how we are trying to co-ordinate it, and I must say that, so far, I have found what seems to be a very hearty and healthy desire on the part of all departments to co-operate in order that we might make the enterprise a success.

A Mistake That Happened.

Some of the other details are to be considered. One mistake has already been made in the development of our war programme. It was also made in England. I do not know that we can criticize the mistake. It rather grew up before we saw what had happened. It was a very natural thing to do, the thing that was done. But this has happened:

We have concentrated our orders too much in certain localities, and by so doing we have overdrawn on the available supply of electric power in some cases. It has resulted in bringing workmen into localities where there was not a sufficient preparation for housing and boarding, and it has introduced transportation difficulties that are most difficult to solve, and for those reasons, and others which I might speak of in specific instances, it has become very clear that we should stop and consider, before placing any additional orders for munitions, or war materials, whether the placing of the order at this or that particular place is going to aggravate one of the problems I have just mentioned.

That matter, perhaps not from that point of view, but for the greater diversion of industry, was made a subject of discussion between a committee of the United States Chamber of Commerce and myself a short time since. The Board, acting under the authority it has, from the Council of National Defence, has created what, for want of a better name, we have called an industrial department, and we have placed in charge of that department Mr. Peek, of Moline, to do this particular thing—to acquaint himself with the requirements of the Government, so far as additional production capacity is concerned, and also to gather and tabulate information showing where, if possible, there are other plants whose activities may have been curtailed by the general war programme, plants of such a character that they could be used to do the particular work in mind.

That matter has been brought to the attention of the War Industries Board by means of numerous letters received from people of this character:

"I have a plant of such and such a capacity, and a power-house of so many hundred horse-power. I have such an

organization and so many workmen. We have been doing such and such things. We find it extremely difficult to get material, because of the demands of the Government; and, besides, the demands for our goods have lessened, and we find that our business is gradually drying up. We would like to do something for the Government. We would like to make something else. Whom can we see? Where can we go? How can we find an opportunity to do something in this emergency?"

It was from that particular point of view, first, that we asked Mr. Peek to join us so that there would be a man to whom such individuals can be referred, whose duty it would be to hear what they had to say, and find out what they had that could be useful, make an inventory of it, and then find out, through the various departments, how that organization, that power plant, those men, could be made use of, and save letting that plant rust in idleness, save the necessity of those men being thrown out of employment there, and obliged to go somewhere else, save the necessity of building duplicate power plants at some other place, building houses at some other place, for those same men to live in who already had their own houses, and all the other incidental things that would happen from unnecessary changes.

I want to repeat that some of the things that are to be avoided are these—the closing of plants; throwing into idleness plants representing large investments, when such plants could be used as a part of the war machinery; avoid the necessity of changing the location of many men and their families when they are already provided with houses and facilities where they are; save the further necessity of concentrating too much manufacturing in one particular centre, as has been done at Niagara Falls. There we find that an overdrain has already been made of power that is available It would be most unwise to very largely increase the demands made upon that power until some readjustment might be made. Again, to avoid adding to the concentration and congestion of transportation in certain sections of the country. That, by the way, is the thing that has contributed chiefly to the congestion that has taken place on some of the eastern railroads.

Victory—With Least Disturbance.

Because a great part of our war industrial programme has been thrown into centres that were already heavily built up, already at the very verge of their capacities, and then overnight they have been asked to double, and treble in many instances, and to do it, and do it satisfactorily, means the building of new facilities, new transportation lines, the doing of things that apparently will be unnecessary and wasted when the war is over. We ought not to do that. We ought, first of all, to do anything and everything necessary to win the war. There can be no compromise on that question, and if to do that it were necessary to make everything in Pittsburgh or Philadelphia, or Wilmington, or Bridgeport —we would do it and take whatever went with it.

I cannot say too emphatically how large and serious an undertaking we have embarked upon. There must be no misunderstanding about that. There must be no minimizing the magnitude of what we have undertaken to do. There must be no division. There must be no talk of business as usual. That was one of the most serious mistakes, so I am told, that they made in England in the early days of the war. Business may go on as usual after we win the war. Business cannot go on as usual until this war is settled right.

The War Industries Board is trying, because it feels its duty to try, to make the present machinery, as it now exists, meet the necessities of this situation. There is not a man on the Board who has any feeling or personal pride of discovery or authorship about the present plan. It simply is the plan that is now in effect. We hope it will meet every requirement of the case, and people generally say, "Yes, if you can get co-operation, if everybody will help, it will work all right; but everybody will not help." That remains to be seen. I have not yet found one single man when the case was put up to him, who was willing to stand against anything he was asked to do, reasonable or unreasonable.

I would not want you to suppose that unreasonable things have purposely been asked. But I know in our discussions we have made suggestions at times which seemed reasonable to us, but did not seem reasonable to the other man, and after he had explained it to us we saw, ourselves, that our proposition had not been reasonable. Even then, with that understanding, I have not found one case where the man did not come up to the test before it was over with and say:

"All right; we are here to win the war, and if we do not win the war, it does not matter much what happens to anything else. I am here to help."

The Spirit of Democracy.

That is the spirit we have found so far. It is because of that spirit that democracy can be a success. But we must bear this in mind, if we want a democracy, and if we want our form of government, we must take it frankly and fairly, we must recognize its limitations and its imperfections and we must try to overcome those imperfections and limitations, and we can do that if every man, when called upon, will come to the front and do voluntarily and willingly what he would be made to do under an autocracy. That is all the difference. In our kind of government he is asked to do it because it is right. I think that will work. And I want to say this to you, the American business man:

It is just as much your duty to help make this thing go as it is my duty. Neither I nor my associates, nor any other man or body of men, can carry this programme on without the assistance of you and hundreds and thousands of other men like you. If there can be brought to bear in Washington the sum of all your intelligence, the sum of your experience, the potential power of your loyalty and patriotism and your desire to make this thing go—if we can bring that all together without selfishness, without desire to take any personal advantage of the situation—then I have no doubt the scheme as we are working it will be a success.

Anything short of that will be a failure. I cannot believe that you are going to fail in such an emergency.

5,000 FACTS ABOUT CANADA.

The new edition of that popular publication, "5000 Facts About Canada," for 1918, has been issued and again meets a long-felt want for a concise record of Canada's progress and development in a single year. The compiler is Frank Yeigh, the well-known author and lecturer and acknowledged authority on everything Canadian. This is the tenth year of its publication, and the new issue is enlarged and improved over previous editions. Fifty chapters deal with the outstanding features of the nation, arranged alphabetically from "Agriculture" to "War," presented in a series of crisp paragraphs that quickly tell their significant story and that will prove a revelation to even the best informed Canadian. Copies may be had by remitting 25 cents to the Canadian Facts Publishing Co., 588 Huron Street, Toronto, or on enquiry from leading booksellers. This "tabloid cyclopedia of Canada," as it has been aptly called, is a splendid investment.

Changing Flow of Re-Export Commerce

Even in the Midst of War-Time Conditions, Re-Export Commerce is Going on All Over the World, but it is Changing to New Directions and New Connections

(Reprinted from "The Americas")

BUSINESS concerns in the United States that are organizing extensively for after-war distribution of their goods in foreign markets, or are interested as large manufacturing producers in carefully handled economies in obtaining supplies of foreign raw materials, will watch very closely in coming months the further developments in war-time trade that are bringing considerable changes in the organization of international commerce. One part of the machinery of international distribution that has an important place in carefully made plans of large import and export business is the re-export organization of trade over the world, which is now undergoing great changes, the full extent of which cannot yet be determined.

More than $4,000,000,000 worth a year of all the commodities that move around the world in commerce are handled at least twice, going from the place of production to some of the great merchandising ports of another country, to be resold there and exported again to the country where it is consumed. In fact, hundreds of millions worth of goods and material are handled along over and over again, appearing in several different countries' commerce before the ultimate consumer buys it. It is a feature of international business that few persons know more than a little about, even among men who are engaged in export business, but no corporation with an extensive trade abroad can do business without being affected by a change in re-export methods and connections. It has a very important bearing upon our national trade, and even the smaller manufacturers who are planning to sell their goods abroad might well watch what is going on because of the changes in opportunity or handicap for their own business that may come about.

Re-export takes a number of forms and serves many different purposes in highly organized production, with ultimate economies, and trade. The biggest thing in re-export trade is the merchant commerce that focused in the English Channel and the North Sea before the war, in which London, Hamburg, Antwerp, Rotterdam, Havre, and other busy ports were not only the gateways for foreign imports consumed inland and exports to foreign countries of manufactures that were produced in the country tributary to them and shipped direct to customers, but were great merchant cities, entrepot markets, where the products of other countries were gathered for redistribution around the world.

England had a merchant commerce of over half a billion dollars in other nation's goods. Germany, Holland and Belgium were busy as "trader" nations as well as manufacturers. But re-merchandising is also carried on all over the world. There is Hong Kong, a "free port," where the produce of the Far East is gathered and whence the products of the West are distributed. There is Singapore, which imports the products of all the East Indies and exports them in bulk. And the commercial details of the trade of New Zealand show that European goods obtained from the Australian mercantile establishments are redistributed to the South Sea Islands in large quantity. Sometimes these goods had gone to Australia as re-exports from England.

Re-export commerce is going on all over the world, even in the midst of war-time conditions; but it is changing to new directions and new connections, which may make a great difference in the ability of nations to hold their regular trade arrangements. It is going to make a great difference in international merchandising if the merchant marine of the world is owned by different nations in different proportions after the war than before, and the new tariff conditions and the possible new national boundary lines that are looked for will complicate the changes. If Europe comes out of the war with international rancour so persistent that old co-operative methods of manufacturing, trading, and transporting are impossible, a new order in world-wide merchandising may be expected.

In the twenty-five years just preceding the war, Europe built up an interlocking, internationally co-operative machinery of trade, industry, and transportation, and by commercial diplomacy made the necessary concessions and arrangements in tariffs to permit the machinery to work economically. The whole world, the United States included, took a part in certain phases of this arrangement.

First, there was the machinery of ocean transportation. It was steadily growing to be an international machinery, although the individual nations were strengthening their merchant fleets for exclusively national purposes and taking a more and more advantageous position in trade by doing so. In 1880 England carried 70 per cent. of the commerce entering and leaving her ports in her own ships, 30 per cent. of it going in foreign vessels. In 1912, with nearly three times as great a tonnage of shipping going in and out, she carried only 58.2 per cent. of it, and allowed 41.8 per cent. to come and go in foreign ships. We find Germany, with a great increase in her own shipping and a growth of commerce that caused the tonnage that entered and cleared her harbors to grow from 13,066,412 in 1880 to 49,460,469 in 1911, increased the proportional business of her own shipping in her commerce from 39.1 to 50.3 per cent. British ships had carried 38 per cent. of the German commerce in 1880, and their part decreased to 23 per cent. The growing fleets of other nations increased their activities as carriers of German commerce from 22 to 26 per cent. The growth in the co-operation of the maritime commercial nations in each others' transportation is shown by the following changes in proportionate tonnage:—

	Total Tonnage Entered and Cleared.	Own Tonnage %	British Tonnage %	Other Tonnage %
United Kingdom, 1880..	58,736,063		70.4	29.6
United Kingdom, 1912...	152,457,045		58.2	41.8
United States, 1880.....	30,547,026	20.4	51.7	27.9
United States, 1912.....	69,365,104	13.5	52.3	34.2
Germany, 1880	13,066,412	39.1	38.1	22.8
Germany, 1911	49,460,469	50.3	23.0	26.7
Russia, 1885	10,792,894	8.7	49,7	41.6
Russia, 1911	27,738,433	10.9	32.1	57.0
Norway, 1880	3,985,477	68.2	11.8	20.0
Norway, 1911	10,230,279	52.7	9.8	37.5
Sweden, 1880	6,894,155	37.2	13.5	49.3
Sweden, 1911	23,390,647	49.8	5.4	44.8
Denmark, 1880	4,523,643	52.1	11.4	36.5
Denmark, 1911	17,144,432	54.2	5.1	40.7
Holland, 1880	6,844,037	30.9	49.8	19.3
Holland, 1911	30,847,855	26.6	30.5	42.9
Belgium, 1880	7,116,146	11.6	59.4	29.0
Belgium, 1912	32,672,986	11.4	43.2	45.4
France, 1880	25,032,478	30.0	40.6	29.4
France, 1911	61,366,051	24.0	36.1	39.9
Italy, 1880	9,846,970	34.8	34.3	30.9
Italy, 1911	51,851,528	27.0	28.7	44.3
Japan, 1900	19,661,602	34.9	38.9	26.2
Japan, 1912	43,492,604	47.6	30.4	22.0
Argentina, 1880	2,242,582	11.1	37.8	51.1
Argentina, 1911	25,981,569	43.4	33.5	23.1

The ocean shipping of the world was steadily trending to the establishment of extensive systems of regular lines and of shipping consolidations and conferences, these having great speedy ships on certain routes, with economies of regulated transportation on a large scale; but there were "feeder lines" of smaller boats, and many cargo ships directly owned or chartered that looked out for the carriage of bulky commodities in full-ship quantities by direct voyages, and for the transportation of the seasonal movement of wheat, cotton, hides, etc. There was still the army of "tramp" ships that "found" their cargoes as they went from port to port. Liners and all, however, gave an international service, and the great mercantile ports on the Channel and the North Sea were ports of call. Ships of all nationalities in late years were given access on equal terms and thronged the ports of the great maritime nations of Europe. The tables of statistics showing the tonnage of entrances and clearances in London and other ports are dry-looking things, but when they are understood and read with some imagination they tell a very interesting story of the great procession of ships, both steam and sail, as they made the round of the harbors and then "stood off" on the long voyage to distant ports, returning by triangular routes, as the stream of shipping, looked at as a whole, carried the heavy tonnage of outward-bound European products to certain parts of the world and then circled about to other producing countries to load the bulky current of the materials Europe imported. It is a picture of the "organization" of ocean shipping, and in it we can see two apparently contradictory developments harmonizing with each other. We can see how the nations that maintained or were building up their merchant shipping wielded a strong influence on the commercial situation proportionate to their marine, and at the same time we can see that all the nations used the ships collectively and in a kind of co-operation. The same intelligent national self-restraint by which intense competition and shrewd co-operation at advantageous points were exercised together shows also in the international use of other institutions of commerce before the war.

Co-operation Before the War.

There was a great deal of co-operation in international merchandising organization before the war also. The big London concerns that did a world-wide export-merchant business marketed lines of goods for German and for French, Belgian and Swiss manufacturers. At least they bought German and French and other goods in order to offer to their customers more complete assortments of merchandise to choose from. Shipping convenience, merchandising policy, etc., explain the very interesting fact that England imported from Germany in 1913 around $20,000,000 worth of goods to re-export and Germany resold very nearly the same amount of British goods that year. England gathered together $96,272,616 worth of the products of other European countries in 1913 to resell in her overseas commerce.

England resold to other European countries $296,408,699 worth of overseas products that she had gathered from her colonies and from her friends across the ocean by means of her unrivalled organization of shipping, colonial control, merchandising, banking, free markets, insurance, etc. Hamburg, Antwerp, Rotterdam, etc., could not rival that phase of England's commerce. And so England distributed products of overseas countries in Europe of value nearly four times what she bought in Europe for purposes of merchandising abroad. And the war, up till the beginning of 1917, could not loosen the British hold upon her wonderfully organized merchandising commerce. In 1913 she gathered out of the Baltic region, from Russia, Sweden, Norway and Denmark (to omit the North German trade), $17,130,309 worth of their products, and she sold them $56,787,883 worth of other countries' goods. She resold only $11,699,777 worth of Baltic products in 1916, but her sale of overseas products in the Baltic trade grew to $78,119,422. From the four countries that are now the common enemy, Britain took $26,457,261 worth of goods for resale in 1913 and resold to them $104,018,413 worth. There are no figures for 1916, of course. From all Europe she bought $96,272,616 worth in 1913 for resale, and sold $296,468,699 worth of the rest of the world's traded products. With the enemy and with Belgium and the other over-run countries out, England in 1916 did the immense merchandising business of $68,959,606 worth of European goods outward and $228,716,312 worth of overseas goods inward. Taking her re-export business with the neutral European countries alone, England's takings of their goods to sell again rose from $32,303,254 in 1913 to $36,516,649 in 1916, and her distribution of colonial and foreign products to them rose from $89,584,590 in 1913 to $114,842,095 in 1916.

Britain's Wonderful Trade.

It was a wonderful trade, Britain's purely merchandising commerce. In 1913, $22,314,235 worth of textiles manufactured by other European countries passed through English merchant concerns to third-party countries, and maybe were distributed through fourth hands. French textiles to the total of $11,025,361 and German to the amount of $6,545,583 were re-exported by England. But the great service to the whole world wthat England gave with her organization of international merchandising and shipping was the gathering together of raw materials and native products from her colonies and from other non-industrial and non-commercial countries, which she standardized, improved, and resold in merchantable quantities to the great industrial nations of Europe and to America. It was a two-sided service, the marketing of the producing countries' wares for them and the furnishing of these to the consuming nations. The British trade figures tell the story of little consignments of tin ore from this, that, and the other colony or foreign land —amounts too small to support a local smelting industry or to warrant direct marketing anywhere. These were taken on British and other ships bound for London. In England the many little consignments grew together to thousands of tons. It was smelted in the British smelters and then went out to the world in professional blocks. There are other commodities by the score that England merchandized in the same way. It is interesting to see where England obtained her goods for resale, as between her colonies and the rest of the world, and where she resold them, because it will figure in the decision of the British policy of Union of Empire. For four years she bought for resale:

	From Colonies	From Others	Total
1913	$272,937,600	$259,174,080	$532,111,680
1914	242,110,620	221,528,520	463,639,140
1915	275,911,920	205,247,520	481,159,440
1916	261,259,020	212,450,040	473,709,060

In the same four years she resold imported products in this way:

	To Colonies	To Others	Total
1913	$76,168,900	$466,360,740	$542,529,640
1914	59,596,020	404,429,760	464,025,780
1915	60,103,620	421,332,840	481,436,460
1916	70,630,380	403,535,520	474,165,900

If the figures for the total imports and exports should be placed alongside they would show that England, since the war began, has preferred to use more of these imports, her resale of colonial products out of imports falling from 30 to 17 per cent., so that England's merchandising business, while still great, was somewhat overshadowed by the imports and exports of warlike trade.

The kind of products that England bought for resale within and without the British Empire is shown in these figures:

COLONIAL PRODUCTS BOUGHT FOR RESALE.

	Food	Materials	Manufactures
1913	$26,924,400	$191,804,760	$54,174,420
1914	30,118,580	169,234,920	41,727,960
1915	44,658,540	192,562,920	38,583,540
1916	45,275,760	169,949,340	45,965,880

FOREIGN PRODUCTS BOUGHT FOR RESALE.

	Food	Materials	Manufactures
1913	$50,130,900	$119,415,060	$88,986,600
1914	53,285,040	92,516,760	75,339,720
1915	63,913,860	72,725,040	68,414,220
1916	56,701,620	68,846,760	86,454,540

These figures are worked out from Great Britain's returns of trade in accordance with the official classifications of raw materials and manufacturers. As a matter of fact when you get under the surface of the returns you find that the "manufactures" from the colonies differ greatly from the "manufactures" that come from foreign countries, the one including not only native products very different from the merchandise of highly organized industry, but metals like block tin and other materials that are practically raw materials for the industrial nations. The fact is very plain to anybody who sees the figures that England has been the merchant nation that has marketed the primary products of the empire among the manufacturing countries of Europe and America, and has kept its colonies supplied with much of the manufactured products of foreign nations, doing the same for many other countries not industrially developed. It has held this great mercantile commerce simply by energy and excellence of world-wide organization, exercising the very smallest amount of political influence, and liberally holding the doors all open for its colonies to develop as much direct trade with other nations as they desired.

Other Nations' Trade.

Germany, Holland, Belgium, and France conducted also extensive re-export business. Holland's organization was like England's, but upon a smaller scale, and even more ancient than England's. Germany had the world-wide trade and shipping connections of Hamburg and Bremen, with the splendid mechanical equipment of harbors and the great steamship lines that they were developing. Havre, Antwerp, Rotterdam, Amsterdam, Hamburg, and Bremen were the doorways of trade between the Baltic countries and the inland of Europe, and much of the re-exporting credited to these cities is merely the passage through them of merchandise and commodities that were transshipped from rail to boat, from boat to rail, or from ocean ship to Baltic coastwise vessel. They were also distributing headuarters in a mercantile way. The grain trade of Europe was complicated before the war by reciprocal international arrangements for moving cereals across countries, and some nations that raise very little grain exported it in huge amounts, simply mercantile re-distribution. Hamburg was the recognized marketplace for an immense Baltic commerce. There were international arrangements by which the highly organized manufacturing industries of the crowded region that is now being fought over—Belgium, North France, Luxemburg, and contiguous Germany—passed merchandise in different stages of completion back and forth across boundary lines in economical exchange of skilled services. Commercial diplomacy was continually busy over agreements by which "improvement trade" could be carried on without hindrance. German glove manufacturers, for instance, were able to have the sewing of gloves done most skillfully in Belgium. After the leather had been cut to shape, the pieces were "exported" to Belgium. The ornamentation on the back of the hand and other particular sewing was then done in Belgium. Again the uncompleted gloves were "exported" back to Germany for final finishing. Much of England's woolwashing was done in Belgium. This phase of "re-export" trade is entirely a separate thing from the mercantile re-export. But it was a definite feature of all that economical co-operation in international industry and commerce that the war seems completely to have broken up in Europe for the time being.

Import and Export Totals.

The merchandising import and export totals of France in 1913 are huge figures, $460,560,000 bought for resale, $476,000,000 re-exported, $120,467,000 going to her colonies. In 1912, $487,459,000 worth of other countries' goods passed through Belgium, in transit and through the busy mercantile channels of Antwerp. It is difficult to find out exactly how big a merchandising re-export Germany did, because the business of the free-port areas of Hamburg and the other ports are given in tons, not values, as are all the statistics of Hong Kong, the great Oriental *entrepot*. The re-export tonnage of 1913 is put at 1,686,679 tons, compared with 5,951,745 tons of "special" exports, or about a fourth, by weight, of all Germany's exportations. By careful analysis it is found that Germany in 1913 re-exported $43,897,000 worth of products imported from the United States, acting as our distributor around the Baltic and in Eastern Europe. We bought from Germany $6,777,000 worth of foreign merchandise. Of Switzerland's imports, amounting to $383,800,000 in 1913, $45,183,000 consisted of re-exports from France, $38,372,000 re-exports from Germany, $45,000,000 re-exports from England, $128,000,000 in all of goods bought through these countries alone. Holland in 1913 handled 2,487,418 tons of transit commerce, a greater tonnage than Germany. Holland handled 1,219,891 tons of commerce through her ports going to Germany. The greater part of this Continental re-export is probably pure "transit" of goods, handled by rail, river and coastwise shipping across countries, the mercantile and banking organizations taking a hand in the traffic largely as forwarders. The British statistics show that when gold was exported or imported in settlement of balances with Switzerland, in former years, Germany was the intermediate. The interweaving of this international business kept the diplomacy of the countries in continuous negotiation. Germany's commercial treaties all devote long schedules to concessions in tariffs, concessions in rail rates, etc., made to facilitate transit commerce, commercial re-export, and "improvement trade." France had a national policy in opposition to the encouragement of transit through the ports of her ally, Belgium, and had conceded favors for German ports to the insistent diplomacy of her enemy. Germany put over the elaborate Russo-German commercial treaty in a way to give her a hold upon Russia's commerce, both import and export, as middleman.

Change in British System.

During 1917, when the U-boat campaign had its fullest effect in interfering with the organization of ocean shipping and England began to sacrifice trade supremacy to the necessity of concentration upon the war, a decided change in the British system of mercantile re-exportation took place, accentuating a slow development that was already in progress. We are to-day obtaining direct from the sources of supply in British colonies and in countries that formerly sold through London much of the raw materials we formerly obtained in England and in other markets of Europe. In immense tonnages, rubber, tin, hides, wool, etc., have been coming to us

direct from the Indies, South Africa, South America, etc., which we formerly bought as re-exports in London, Antwerp, Rotterdam, and Hamburg.

When the war ends there will almost inevitably be a disposition of the world's ocean-shipping tonnage very different from what it was in 1913 or what it is now. It has been predicted that the merchant shipping of the United States will be as great in tonnage as that of England. With any such growth of our shipping as is predicted, we will surely establish a new system of ocean routes focusing upon our own national harbors. It is proposed that New York shall be made a "free port," which will be an encouragement for our own re-export business, which has already grown from $37,377,791 in 1913 to $63,036,795 in 1916 and is taking on the typical character of a merchandising trade. We are building up typical world-wide merchandising organizations of our own, and great London houses are putting branches in New York in anticipation of our sharing at least with England a world-wide organization of ships and commerce.

Organization Lost.

Germany has lost her organization. The Scandinavian ports are ambitious to locate permanently the Baltic collection and distribution that Hamburg and Bremen used to all but dominate, deferring only to London's commercial power. The British Government, in its exercise of war control over trade, has done much to disorganize the London and Liverpool machinery of mercantile commerce. There is great likelihood of a British inter-imperial policy of economic union which will establish either preferential tariffs or attempt to organize government-owned agencies of transportation, etc., favoring inter-empire industry and exchange of products. Everything points to a British intention to take full advantage of the fact that the lion's share of materials needed in modern manufacture are produced, till now at least, have been produced, in the colonies and dependencies.

A Bigger International Machine.

The war has now made a complete wreck of the machinery, commercial treaties, and trade good-will by which the nations in Europe co-operated in furnishing each other with materials, in the processes of manufacture, in selling, and transporting. England is on the point of adopting legislation that will shut individuals of "enemy" birth, even naturalized as Englishmen, out of her markets after the war. The little nations and the colonies that did their marketing through European centres have established direct connections. We are getting much of the raw materials we import to-day through the mercantile organization of England but by direct shipping transportation. We have taken over with her whatever is left of British co-operative connections in international commerce. We are expanding our commercial organization and building many ships. What kind of a world organization of commerce will rebuild out of the pieces of the old, nobody knows, but it looks very much as if the United States would be in a position either to conduct a pretty capable machine of our own, or co-operate with England and our other associate nations in the building of a bigger international machinery than existed before. If we do build up a new co-operation that excludes any other nation, for any reason, it will be a handicap in the rehabilitation of that other nation's own industries, as well as its foreign commerce, not to be lightly considered.

Illness in Industry: Its Cost and Prevention

Proceedings of the American Institute of Mining Engineers, 1918

By THOMAS DARLINGTON, C.E., M.D.

Secretary Welfare Committee, American Iron and Steel Institute

THE obligation of an employer to the State requires certain things of him as matters of good citizenship: for instance, that his workmen shall have a living wage, that child labor shall not be employed, that injuries from accidents shall not make workmen a charge upon the State. Affairs of this kind are not taken up as philanthropy. It is good business.

For years the poisonous effects of lead, phosphorus and dust have been emphasized and their elimination has been urged; but the more important and everyday physiology of the workman himself has been neglected.

Accident compensation has been enacted in 33 states; it has been shown that it pays both employer and employee. A further step is the recognition of sickness and disablement, independent of accidents; not only because of their immediate cost to the worker and to the employer, but because continued efficiency in work and business depends largely upon health.

Illness Causes More Lost Time than Accidents.

Records show that the time lost by employees, through illness, ranges from 4 to 10 times that lost as the result of industrial accidents. The loss to the employee through accidents occurring in the course of his employment is now generally recognized as a cost which should be borne by the industry and not by the individual. It has been argued that the cost of illness should also be transferred from his shoulders. Illness prevention may some day become as essential from the standpoint of operating costs as accident prevention now is. As a matter of fact, illness in industry already has an effect on operating costs that is far from being generally realized.

Cost of Health Supervision.

The cost of health supervision is not large, as is shown by a comparison of the cost of health supervision in 99 industrial establishments, employing altogether 495,544 men, made recently by M. W. Alexander, for the Conference Board of Physicians in Industrial Practice. The figures vary rather widely, since some plants reported only the medical cost while the majority included the cost of clerical assistants and even of janitor and scrubwomen. The average cost per man per year for the 500,000 employees was $2.50, or about ¾c. per day. Two of the companies not only give medical and surgical attention to injured employees, but furnish all the medical attention required for the families of workmen, as well as for the men themselves. In the case of an iron-and-coal-mining company employing 11,000 men, the cost of giving all the medical attention required for the men and their families amounted to $11.82 per man per year, or less than 4c. per man per day.

If, then, health is so important to industry, we must know the conditions upon which it may be enjoyed. We may consider the subject under three heads:

1. Personal hygiene, or care of themselves by employees.
2. Care of employees by employers.
3. Care by federal, state or municipal authorities in the making and enforcing of laws.

Personal Hygiene.

Taking up first, matters of personal hygiene and the care of the individual, the things to which a workman should pay particular attention are: Regulation of his meals as to the amount, character and mastication of them; the amount and character of drink; hours of rest and sleep; ventilation of rooms: personal cleanliness; clean clothes; washing of hands before meals; brushing of teeth; daily washing of feet; proper fitting of shoes; amount and kind of clothing; care of the eyes, ears and nose, regularity of movements of the bowels; regularity of work, and the cultivation of cheerfulness. The mind has much to do with the body, and especially with tissue changes and secretions.

It is impossible in this article to take up every one of these subjects, but as illustrations, two may serve our purpose. Let us consider the importance of washing the hands, particularly before each meal.

To Oliver Wendell Holmes and to Ignaz Philip Stemmelweis we owe the beginning of our knowledge that disease is carried by the hand. They demonstrated that puerperal fever and erysipelas were carried in this way, and Lord Lister started us on the road to prevention. To-day we know that most disease is carried by contact with the body or with its secretions. There is no known method of perfect disinfection and cleansing of the hand. A culture test for bacteria on the hands after washing without using a brush shows a relatively high count; but if a brush is used, more particularly if the hand is afterward rubbed with a rough sterile towel, the bacterial count is much smaller. Fortunately, septic conditions do not arise when the bacteria are very few in number; infection depends upon the number and virulence of the bacteria.

Infection by Handling of Food.

Perhaps the most striking illustration of infection caused by the handling of food is a case that has appeared in the daily press. While Commissioner of Health of New York City, my attention was called to a certain cook named Mary Mallon, or as she was called in the newspapers "Typhoid Mary." Mary had lived with a number of families. It was noted that in whatever family she lived, someone soon became ill with typhoid fever. The physician who had noted this, Dr. Soper, found that 26 cases of typhoid fever had occurred in these families. Under the power granted to the Board of Health for the preservation of health and the protection of the public, she was removed to the hospital for observation, and it was found that some of her ejecta were almost pure culture of typhoid. She declined to undergo any operation; and as other treatment did not cure, she was deprived of her liberty as a menace to the community. In this course the Department of Health was sustained by the courts. But the following administration, upon her promise not to ply her occupation as a cook, gave her liberty, and for several years nothing was heard of her. In January and February, 1916, at the Sloan Maternity Hospital, 25 cases of typhoid fever occurred. A careful inquiry as to the cause of the outbreak led to the discovery that Mary Mallon was the cook. The only way in which she could convey the disease was by contaminating the food through failure to cleanse her hands properly.

If disease is so easily acquired from soiled hands, what is the lesson we are to learn? Workers should have facilities for washing after going to the toilet. Particularly they should be encouraged to wash their hands before taking their lunch from the basket. Even though not pathogenic, the bacteria carried to the stomach from unclean hands may cause trouble. But this is not the whole story. An observer at a public hearing of the New York State Workmen's Compensation Commission, noting the victims of accidents as they appear there, would be impressed by the large number of deformities of fingers and hands due to infection of wounds. Case after case have come before the commission, where such poisoning has resulted in necrosis of bone and made necessary its removal; or tendons have been divested of their sheaths and become fastened to the tissues and are no longer able to operate; or the muscle itself has been destroyed by an abcess; or nerves have been ruined, causing paralysis; or joints have become ankylosed and will not bend. As a result, the fingers and hands become deformed, twisted and useless. Thousands of dollars in compensation have been lost, and many a good workman has been incapacitated for life. Clean hands and clean skin would help to prevent much of this infection.

Mouth Hygiene.

Let us take a second simple illustration—that of mouth hygiene and the brushing of the teeth. Food can be properly masticated only if the teeth are in a healthy condition. It follows that good teeth are desirable, and a factor in energy. One eminent medical authority has stated that decayed teeth are even more harmful than alcohol. But the harm of decayed teeth and unclean teeth is not so much the difficulty encountered in chewing as the fact that they make an unclean mouth, and may produce abscess.

It is only recently that much attention has been paid to this latter result. It is growing in importance in the minds of physicians. In the practice of their profession, physicians find among their patients many persons who suffer from an infection that is confined to one spot in the body—focal infection—but that is the cause of, or relates to, general disease of the system. By far the most frequent location of such infection is in the mouth or throat. Decayed teeth and abscesses, the result of such decay, often affect the whole body, and even when not the primary cause, intensify and prolong disease.

We now know that many cases of rheumatism, *arthritis deformans*, tuberculosis, various forms of heart disease and disease of other organs, arise from tonsilitis or some other diseased condition of the mouth or teeth. But even though local disease may have such serious consequences and be the origin of dangerous and frequently fatal disease, to my mind it is not of so much importance as another sequel of an unclean mouth.

Mycology of the Mouth.

A study of the mycology of the mouth shows that various disease-producing bacteria may inhabit it; at least fifty different forms have been found there. Many well known species some of which occur only in the mouth, are associated with disease of other parts of the body. The mouth always contains some bacteria, sometimes only a few species, sometimes many; sometimes few in quantity, sometimes in vast numbers. In pyorrhea, which loosens the teeth and is accompanied by an exudation of pus from the sockets, millions of microbes are found in the pus.

To my mind the harmful effect is produced principally by swallowing these bacteria, especially by having them mingle with the food in the process of chewing. If there is not sufficient gastric juice to kill them, they produce a fermentation of the food, and then, passing out of the stomach into the intestine, produce poisonous products of decomposition. These, on absorption, produce bodily fatigue and low resist-

ance to disease. Much of the sour stomach, dyspepsia and other stomach troubles from which people suffer are due to contamination of the food by bacteria from unclean mouths. In the many experiments and observations made by Dr. Beaumont in connection with his patient, Alexis St. Martin, he noticed that pure gastric juice would often keep indefinitely, but if mixed with much saliva it quickly spoiled.

Food Contaminated in the Mouth.

We are careful, especially with children, that water be boiled, milk scalded or pasteurized, and food generally well cooked in order to destroy bacteria. If food be carefully selected and prepared, danger from that source is reduced. But all this care may be in vain if the food becomes contaminated in the mouth. Such precautions would seem of little value unless the teeth be brushed and the mouth cleansed and disinfected both before and after each meal. Of the two, it seems to me that cleansing before meals is the more important. Still another thought in this connection is: If food, sugar for instance, that enters the stomach, undergoes fermentation there and is split up into its constituents, some energy is lost to the body; for it is by this very splitting up of food within the muscles that energy is produced.

How do bacteria get into the mouth? Some enter with the food; some inhabit the mouth and multiply upon the remains of food left between the teeth; many enter with dust while breathing, particularly the dust of the street; still others get into the mouth from the hands. Is it too much to hope for that in the future every workman will not only have a proper place to eat his noon meal, but will also wash his hands and brush his teeth before he eats it? It seems to me that it would pay well from the standpoint of lessening fatigue for every worker to use a toothbrush before every meal, to have one in the locker and use it at noon. Yet where is this the case now? Still, I confidently expect that in a few years this will be a common practice.

Care by Employers.

Leaving these matters of personal hygiene, I will endeavor to enumerate the subjects that may be considered by those in charge of industrial establishments as follows:

Drinking water supplies.
Washing facilities.
Laundries.
Lockers.
Toilet arrangements.
Drainage of sewage disposal.
Disposition of garbage and rubbish.
Care of stables and animals.
Heating work places in winter.
Cooling work places in summer.
Ventilation.
Overcrowding.
Dust, gases and fumes.
Lighting.
First aid.
Hospitals.
Trained nurses and social workers.
Physical examination of employees.
Lunch buckets and lunch rooms.
Commissaries (bread, meat).
Milk supplies.
Flies, mosquitoes and vermin.
Clean mills and yards.
Housing.
Gardens.
Rest and recreation.

In addition to these, which have to do with physiology and hygiene, there are others such as prevention of accidents, education, etc. To give the reasons why each of these cases should be considered would fill a volume; let us consider only one of these subjects as an illustration.

What reason, for instance, shall we give a manufacturer for the installation of a proper drinking-water supply? How shall he justify the expenditure to the stockholder.

As a basis for the consideration of drinking water supplied in connection with industrial plants, it is necessary to study the physiological uses of water in the human body, that is, the effect of water on secretion, excretion, temperature, energy, and other body processes. Water is a natural constituent of the body. Normally it comprises about two-thirds of the body weight. In chemical combination it enters into the substance of the tissues; they are all largely composed of it in varying degrees. It is the main ingredient of the fluids of the body, and helps maintain their proper degree of dilution.

The great importance of water is shown by water starvation. People may live many days without food, but they cannot go long without water. If there is insufficient water in the body, all secretions are lessened and there is dryness of the membranes and change in the functional activity of various organs. Thus there is lessened digestion and absorption of food. Intestinal excretion is retarded; abnormal products are absorbed; there is lessened excretion and increased friction.

Part Played by Water.

Water is nature's great solvent. Taken with food it increases the utilization of food. It aids absorption of food and carries nutrient material through the medium of blood and the lymph to the tissues in the various parts of the body. Solution is one of the essential steps in digestion. There is widespread belief that to drink water with the meals is injurious. On the contrary, one of the most common faults in eating is to neglect to take sufficient water with meals.

We may determine the amount of water necessary to maintain the system in a normal healthy condition by a study of the amount lost through the kidneys, the skin, the lungs and the bowels. In general, the average total of these losses in an adult is 5 pints. This amount must be taken daily. Allowing a pint and a half of water to represent the average water content of the food eaten, the remainder, 3½ pints, about 7 glasses, must be taken as drink in some other form. These figures vary greatly according to the weather and work. Hot weather and exercise increase the demand for water.

Besides carrying food in solution to the tissues, water also carries waste away. Not only is there a building-up process by absorption of food, but there is also a constant wasting process resulting from the production of heat and energy. These products of waste must be rapidly eliminated or they may have a fatiguing effect. They are carried away by the blood stream to be eliminated principally by the lungs and the kidneys. If the wastes from muscular energy-lactic acid and carbon dioxide accumulate, they poison the system and energy is diminished. This accumulation is sometimes due to lack of water in the system from not having taken sufficient drink.

Water Helps Work of Body.

The blood tends to maintain its equilibrium. If more water is taken than is needed, the kidneys and other channels of elimination work faster; the water is more rapidly eliminated and carries with it more waste. Water thus increases elimination and secretion. Absorption of water increases the fullness of the vessels and this promotes secretion. When taken into the stomach, there is always in addition some

increase in the secretion of the gastric juice. There is also increased motion of the muscles of the stomach and the intestines. Besides the functional secretion of the various organs, there are many membranes which must be kept moist to avoid friction. Among these are the linings of the joints, the coverings of the tendons of the muscles, the coverings of the lungs and the coverings of the intestines.

Water and Temperature.

The normal temperature of the human body is 98.6° F. in all seasons and in all climates. Any rise in body temperature disturbs the normal functions of the various organs of the body. While a certain amount of heat is produced in glandular and other structures of the body, the muscles are the principal source of heat production. Loss of heat which accompanies loss of moisture takes place chiefly through the lungs and skin. In active exercise and muscular labor, heat is rapidly formed, and, if not lost by perspiration and by exhalation of moisture from the lungs, it accumulates and the body temperature rises above normal; the individual becomes feverish. This is not infrequently the case in humid days of summer, because radiation and evaporation are largely retarded by a high percentage of humidity in the atmosphere.

Recent investigations tend to show that the unhygienic condition of crowded workshops and of schools and the lowered vitality of workers and school-children are due to increased body temperature resulting primarily from an accumulation of moisture in the atmosphere. Water not only regulates the degree of temperature of the body but acts as a distributor of heat, carrying heat from one portion to another and equalizing the temperature of the body.

The temperature of water affects its attractiveness; water that is lukewarm is not palatable, and ordinarily people will not drink a sufficient quantity of it. The temperature of water also affects health; iced water, if taken in large quantities, frequently producing cramp. While water should not be iced, it is well in summer that it should be cooled. The temperature should be about 50° F. Cold water of this character stimulates the heart. It also somewhat relieves the internal temperature. Imbibing a sufficiency of water removes thirst; thus the drinking of water probably tends to lessen alcoholism.

Many cases of dysentery, diarrhœa, typhoid, and some cases of indigestion and intestinal disturbances arise from bacteria in water. Of the various methods of typhoid infection, the drinking of polluted water is the cause of by far the greatest number of cases. Asiatic cholera is almost exclusively a water-borne disease. In addition water may carry worms and other animal parasites.

Properly Designed Drinking Supply.

Disease may also occur from drinking cups being used in common. Medical researches show that some of the most serious diseases can be communicated through the common drinking cup. To remove this danger, sanitary fountains are constantly being installed. To encourage adequate use of drinking water, it should be attractive; it should be close to the worker; it should be wholesome; the temperature should be regulated; the common drinking cup should be abolished and sanitary fountains should be used instead. It is necessary that these should be properly designed, since some types now in use are almost as likely to be a source of infection as the common cup. Lead pipes should not be used for the distribution of drinking-water supplies.

To discuss all the other topics from the physiological standpoint in similar detail would require too much space, so I will conclude with a brief review of what has been done along these lines in the iron and steel industry, with which I am associated.

Much has been done in the installation of basins and showers and in the erection of dry-houses. In many places these have had the widest use, a large percentage of the employees bathing daily. Here again we cannot adequately estimate the good derived. But we do know that such facilities enhance one's self-respect and the respect of others. The opportunity to wash before going home makes the work of the home less burdensome, and cleanliness of the hands is of especial importance because hands carry disease.

Shower baths affect the circulation of the blood, not only in the skin but in the whole body. They produce a redistribution of the blood in the body and for the time being there is an actual change in the blood itself. They eliminate more rapidly the products of waste and so constitute one of the methods of relieving fatigue. Cold showers increase capacity for muscular work. A shower bath removes the waste products from the skin and makes one less liable to harm from a change in temperature. It reduces the heat of the body, especially on humid days when the body temperature may rise above normal. Incidentally, I would mention that the roller towel has been abandoned in the majority of plants.

Many new toilets of modern construction have been built and hundreds of old privies have been abolished. Especial care has been given to the exclusion of flies and the prevention of pollution of the soil. There have been many improvements in the disposal of collection from pan privies, especially by incineration or in septic tanks. Much pollution of streams has been done away with. Thousands of dollars have been spent for drainage, particularly of back alleys and streets. This drainage has had a very beneficial effect in the prevention of the breeding of mosquitoes and prevention of malaria.

Collection of Garbage.

Better methods of collection of garbage are constantly being installed, with frequent periods of collection. Much has been done in the way of educating employees in the use of garbage cans and the necessity of keeping the contents covered, in order to prevent the carrying of bacteria by flies from the can to the table. Toward preventing the breeding of flies much has been done, especially in mining camps and villages, by the prompt removal of manure and by making stables more sanitary. Education by circulars explaining the danger of flies as carriers of disease has accomplished much.

The cooling of work places in summer is now being considered in many plants, and much is being done to make heated work places more comfortable, thus preventing heat stroke.

Thirty years ago, according to English statistics, nearly all who breathed dust from grinding steel and stone, died sooner or later from tuberculosis. Such dust has been entirely eliminated from certain mills in the industry. Air conditions have been much improved by the elimination of the hydrocarbon series and other gases produced by open fires where combustion is incomplete. These gases are now carried to the outside of the building. Much improvement has been made in the heating of plants in winter by fresh air brought from the outside, filtered, warmed and distributed to the various parts of the building to be heated. This insures a good supply of air free from dust and gases.

How often have men fallen upon fruit skins or the remains of luncheon thrown upon the ground, or have stepped upon a plank in which a rusted nail has been sticking out! Perhaps more has been done in the making of clean yards than in any other direction. It is also to be noted that the physiological effect of pleasant and clean surroundings has an excellent

effect upon the workmen. Beauty and order are persuasive everywhere, and few people can resist them.

Progress in first aid has been so wonderful that the steel industry is now leading the world in this line of welfare work. The reduction of septic cases, from 50 per cent. to 0.1 per cent. speaks volumes. Nowhere else in the world has such provision been made for the care of employees who are injured. The emergency hospitals which have been provided near mine and mill stand to-day as examples for the whole world. They have materially aided in reducing human suffering. Many lives have been saved, and much has been done to prevent fatal termination, by prompt care and by the knowledge on the part of the injured workman that such care is the best that can be obtained.

Rest Farm For Women.

A rest farm for the wives of employees who are in poor health has been established. This farm is under the care of a physician and a nurse. The support given settlement houses and the employment of trained nurses have done much toward keeping the companies in sympathy with employees and replacing despondency with sunshine and gladness. These trained nurses have given their attention to the women and children, particularly babies. Their duties include the weekly weighing of babies, teaching mothers how to dress and undress them, how to modify their milk, the guidance of expectant mothers and nursing them during confinement, the care of children, school inspection and other things too numerous to mention. Domestic educators have taught them how to clean house and the essentials of good housekeeping.

What the race will achieve in the future depends much on the conservation of the health of the children of the nation and in the education of these children. Many efforts have been put forth in the industry for the prevention of disease among children. The establishment of playgrounds is a step in this direction. Play is essential to the education of a child, and these playgrounds promote health, education, morality and happiness. They promote health by the effect of sunlight, of fresh air, of exercise on body processes, and by inducing appetite and healthful sleep. At many of the playgrounds certain accessories have been provided which aid both in education and in health, such as drinking fountains, wash rooms, and water closets, and teachers have been provided to instruct in play and in the use of these accessories. Club houses have been erected, and much has been done to provide recreation for all ages.

All energy being derived from food, good food is then of great importance. Some plants have provided dining rooms and restaurants, with freshly and properly prepared and well selected foods, furnished at the lowest practicable price, served under cheerful and pleasant surroundings. To prevent ptomaine and toxic poisoning, commissaries are often essential in order that food may be properly protected from flies and kept from spoiling by means of refrigerators. As with milk, they also fix the standard of quality.

Care of Infants.

Many a man has been kept awake by a crying child, and injuries have happened from the worry over the sick child at home. Such conditions have been done away with in certain places by furnishing certified milk at a reasonable cost, some companies having herds of cows for this purpose.

Of distinct economic value has been the encouragement given by employers to those living in mining and industrial villages by fencing in plots for gardens, assisting when necessary in plowing and fertilization, and stimulating the employees and encouraging them in thrift and industry by offering prizes for the gardens. These gardens reduce the cost of living—some yielding vegetables enough for the family and also a surplus for sale—and they promote health by bringing the members of the family into the fresh air and sunshine. They mean cleaner yards and better care of drainage and waste, thus preventing odors and the breeding of flies and mosquitoes. They provide a greater variety of food, for many workmen eat too much meat, and an excess of flesh diet is not conducive to the best work, growth and health. They tend to abolition or the confining of domestic animals. They promote morality, keep the owner from the saloon and promote his own self-respect. They help make homes and have a refining influence on the family.

Explosions in Flour Mills

Five Causes Outlined in a Valuable Report Recently Issued by the United States Bureau of Mines

The United States Bureau of Mines has recently issued a report on grain-dust explosions that is of particular value at this time when conservation of wheat is of such great importance. The information cannot be too widely circulated.

The following causes have been assigned to many of the explosions in milling plants:—

(1) Use of open lights, or naked flames, such as lamps, torches, gas jets, lanterns, candles, matches, etc.
(2) Property fires.
(3) Introduction of foreign material in grinding machines.
(4) Electric sparks from motors, fuses, switches, lighting systems.
(5) Static electricity produced by friction of pulleys and belts, grinding machines, etc.

A detailed discussion of the first two classes is not necessary; recognizing the explosive hazard of dust-laden air, it is obvious that all the causes in (1) should be guarded against. Many violent explosions have occurred during mill fires, as the force from the fire produces sufficient concussion to jar accumulated dust into suspension.

A large number of explosions in more recent years have been traced to the introduction of foreign materials into grinding machines, particularly in grinding oat hulls and feeds. Particles of foreign material seem to pass the separating system and, coming in contact with the grinding plates of the machines, produce sufficient sparks to cause an ignition of the dusts in the grinding machines and conveyor lines.

Explosions have been assigned to the ignition of the dust cloud by an electric arc, and by sparks from motors, blown fuses, switchboards, starting boxes, lighting systems, etc. A disastrous explosion in Liverpool, England, in 1911, was due to the ignition of dust stirred up by the breaking of a belt. The cause of the ignition was due to sparks from a blown fuse of a temporary switchboard.

The production of static electricity by friction of pulleys and belts has been assigned as the cause of recent dust explosions. Although experiments have not been conducted along this line to show that a dust cloud can be ignited in this manner, a recent experiment by the United States Bureau of Mines showed very clearly that sufficient static electricity could be produced by a very small pulley and shaft to readily ignite gas. A milling company in Texas, engaged in grinding cottonseed cake into meal, states that, after experiencing a series of explosions, the insulating of a certain grinding machine prevented any repetition of previous occurrences. The fact that explosions have been known to occur at times when the feed of grinding machines was cut off, seems to indicate that an unknown factor may be the responsible agent.

Determining the Cost of the Labor Turnover

Employers Should Know How Much Each Type of New Worker Costs in Terms of Diminished Production Resulting, and of the Excess Equipment Needed, Scrap Incurred and Supervision Required

By BOYD FISHER

(Reprinted from "Manufacturers' News")

THE man who has estimated the machine capacity of the Packard Motor Car Company, which employs between ten and twelve thousand men, asserts that they must have twenty-five per cent. more equipment in machines and in buildings and twenty-five per cent. more employees to get out their work than would be necessary if they had no turn-over of labor. I made a hasty computation that the mere interest on their excess investment alone amounts to $108,000 a year—the mere interest on that amount of money. In other words, they have $1,800,000 invested in equipment that they would not need if they had no turn-over of labor. It seems to me that in itself tells us what the cost is to hire and fire men.

I believe in firing men as a final means of keeping men. We are in danger of being too sentimental about turn-over. We are too likely to regard every man lost as an unwholesome sin. That is just one word of caution to begin with. Let us by all means have the trump card of discharge in our hand and then strive to win by playing off suit. If it is clearly understood by workmen that the patience of management is the forbearance of strength and of zeal of control, all our other methods of reducing turn-over will gain in effectiveness.

Breaking-In Cost of Men.

Now, strictly speaking, what I class as preliminary measures—namely, a cost system and a record system, for turn-over—do nothing in themselves to retain a permanent working force, but without them the effective measures are not likely to be applied. A true cost system is an urgent necessity, if it is true, as Magnus Alexander estimates, that it costs $73.50 to break in a new semi-skilled operator and only $8.50 to take on a new laborer, near percentage, figures for turn-over men very little.

I will not go into details at this time, but I submit that we should know how much each type of new worker costs in terms of diminished production resulting and of the excess equipment invested needed, invested scrap incurred and invested supervision and education required. The thoroughgoing methods for turn-over are so expensive that even the most skeptical managers are convinced we shall not get very far with our remedies for a complete record system. Little preachment is necessary. The aim should be two-fold. The record should reveal graphically not only the extent, but the causes of turn-over and they should reveal the parallelism between high turn-over and low efficiency.

Analyzing the Turn-over.

The turn-over should be analyzed at least monthly and the record show first, by weeks, months and years, how long quitters have been in the employ in order to reveal the critical periods when men are most likely attached to their jobs. Second, by departments, to show what foremen or class of work are most at fault. Third, by reasons assigned to show what conditions call for improvement. It should show also what operations, where it has furnished the greatest mobility, so if the course of new employees has been determined for each operation the monthly losses for turn-over can be exactly computed.

Fundamental remedies for turn-over differ from what I call supplemental, only in relative importance. If you hire a man, wisely provide him with steady work at a good wage and refrain from hasty discharge, your turn-over will be comparatively low. Those are four main remedies—hire wisely, provide steady work, pay an adequate wage and don't fire hastily. The supplemental remedy is to promote efficiency in the man you keep, rather than to furnish additional means of keeping him, and you are likely thus to exercise indirect influence in reducing turn-over.

Grabbing the First Man.

It is almost begging the question to say hire the right man for the job, because obviously the right man is the one you will want and the man who will want to work for you, but there is so much room for development here that I know of almost no other remedy that will reach so far.

When foremen hire they grab the first man who shows up and fire him when he doesn't make good, and a good many employment managers do almost the same thing. In part, this is due to the fact they haven't the resources to write up exact specifications for all of the jobs for which they employ. Still more, because none of us has thoroughly satisfactory tests of ability and character. Still more, it is due to enforced haste in filling requisitions.

Foremen, department men and managers do not give the employment department enough notice ahead of their needs. A list of men required for the year's predicated production should be just as much a part of the Engineering Department's specifications as the blue prints and the routing. The best application file is really a prospect file built up as the result of a census of the workers suited to your plant in your own neighborhood and in your own city, particularly in your vicinity.

Industrial Census Valuable.

The Cole Motor Company, of Indianapolis, has just completed an inclusive industrial census. The Saxon Motor Company, of Detroit, tells me that the simple measure that did most to produce its remarkable turn-over reductions, was the practice of preparing men who live within walking distance of the plant. With a knowledge of the men when hired, the employment manager can employ specifications and forms of examination which will do much to eliminate men who would not make good if hired.

Physical examinations are of course necessary in a good system, and they should be tied up with measures for improving men once on the payroll, by having the examiner indicate deficiencies to be corrected, but even examinations and other precautions, such as visits to the homes of desired applicants and a checking up of previous records of employment, can only be resorted to if ample time is had for inquiry.

There is not space here to deal with the question of industrial education, but it should not be overlooked. One does not

always need to go outside of his plant to put on a new man. It is always cheaper to transfer from a smaller job an employee who has been in training for promotion. A work force can be more certainly toned up by educating apprentices and giving broadening education to operatives, than by hiring brand new men. By any process of selection whatever, the drawing demands of industry far outrun the supply of skilled workers, and not only to contribute its share of paying people, but even to obtain its share, a plant must co-operate in the general educational programme.

Applicant's Standard of Life.

One of the most basic remedies for turn-over is the payment of an adequate wage, and this can be urged only upon plants that take pains before hiring to ascertain when the applicant's home life, his standards of living, as well as his mental and physical fitness promise his being able to earn an adequate wage. There are social implications there that need to be dealt with; that is, the apparent elimination of the unfit, and you govern that in a way, but I believe those are largely for the community to deal with, not for the plant. By "adequate" I don't mean merely a minimum wage. I mean a good fat wage—one that will clothe, nourish and educate children as well as feed him.

The Visiting Housekeepers' Association of Detroit estimates that the lowest possible minimum income for a family of five is $89 a month, and no family in Detroit is wise enough to know how to spend that sum. Well, as a matter of fact, when the estimates were made,we all agreed that every single item of their budget was too low. Eleven plants in the Executive's Club have undertaken deliberately to see that every workman, taking each case individually by investigation, is sufficiently supported. It seems to me, if anything, a more radical step than even that taken by Henry Ford—that eleven plants have said, "We will not have a single employee in our company who isn't adequately supported," and they are going out into the homes and finding out. Some of them discover that for special reasons some families can't live on $100 a month.

Paying Debts of Workers.

Any number of plants, such as the Packard, Cadillac, and Hudson, not only make general rules of cost of living, but particular inquiries and where necessary, pay off at good discounts the debts of workers, allowing them to refund a payment periodically. That is very recent and it is being done very quietly, but it seems to me that is a tremendous step in advance.

As for the remedy of steady work, you should know that it is just as important to keep piece-workers continuously supplied with work, so that they can earn their expected income, as it is to regulate work from season to season, so as to keep a level force. In fact, it is sometimes kinder to the men to lay them off outright than to try to keep them on while they are earning partial wages.

Employment managers cannot do much to regulate production from season to season, and day to day, because these are matters largely of administrative policy and system; they will focus the attention of their superiors upon the necessary remedies.

Curbing Tempers of Foremen.

When I say, "Don't Fire Hastily," I mean to urge not only that you curb ill-tempered foremen and curb your own impatience, but I mean especially to give yourself time to influence men through more slow-acting measures. It would be of very little avail, either as a means of re-selecting, or of disciplining men who had failed in one job, to transfer them from department to department as the Ford Motor Company does with so much patience, unless every day thus gained is counted not only to give a man new hope, but new instruction. So I say, start your men right, promote efficiency, foster good habits, make work an unfolding career, and a sufficient future, and all the time encourage self-expression, not only by complaints, but suggestions and co-operative interests and activity.

Starting men right means not alone to give them a pleasant and encouraging impression of their new work, but also to complete the job of hiring them, give your man a definite starting wage, and so far as possible a reasonable assurance of the rates at which he will be advanced at stated times, if he makes certain standards of efficiency. Then if he accepts your job you may be sure of him.

Introducing the New Men.

One of the things that stood out in my mind after reviewing the many excellent measures of the American Button Company of Rochester, N.Y., is that the new people are asked to come at an appointed time—later than the hour when work starts, and are introduced by a representative of the employment department to their fellow-workers, and made acquainted with the rules, conveniences, and special attractions in the plant, and there are very many of those special attractions.

A fellow-worker is commissioned to take them to luncheon the first day. It is important to follow this manner of introduction up to keep their eye on the new worker until he brings his efficiency up to a level. It may be necessary to help a worker out with money or meal tickets, or guarantee his board until the first pay-day. All the workmen I have known are afraid of debt. Often they quit on some pretext in order to draw pay to keep from going hungry.

Liberal With Meal Tickets.

The Studebaker Corporation in Detroit, is especially liberal with respect to meal tickets, to paying advances to workmen. Much injustice is done to workmen in keeping them on day rates after they have become proficient enough to be put on piece work.

A committee of physicians in industrial practice in Detroit has just recently made a thorough study for a number of weeks of all of the medical departments in Detroit factories, and have brought forth a series of recommendations and I am happy to say that my own recommendations don't differ in any material way from the recommendations they have brought forth.

There are so many things entering into this that it is a good thing when the resources of the company warrant to have a physical department as a branch of the Employment Division, with a high-grade physician and several nurses in charge.

Supervising Plant Construction.

The physical department should supervise plant conditions from the point of view of health, and should have thorough improvement of ventilation, heating, and lighting, the prevention of noise, dirt, obnoxious and unpleasant odors, as well as the sanitation of toilets and waste, the purification of drinking water, and the American Button Company in Rochester is one of the plants who finds it possible to add instruction for the care of teeth and eyes of employees.

You can't go too fast with all this; you don't dare go too fast; employees won't go with you too fast. Furthermore, you have to be sure of yourself, and when a step has been taken, you have to back it up, and you have to make it pay

for itself currently. I have a little saying for myself with regard to friendship—that all obligations between friends are discharged currently, that you shouldn't do a thing to-day hoping to get something to-morrow back; and it seems to me that in promoting friendly relations between employees and manufacturers, it is on the same feeling that what you should do should flow out of interest and intelligent appreciation of their needs, and the obligations discharged currently; there shouldn't be anything too ulterior about it, and when you do that you are bound to go slowly; you let it flow out of your spirit, as well as of what you observe others having done. If you follow that programme it seems to me you are bound to go slowly, and that you won't be merely crazed with another new movement.

United States Licensed Shipments

Regulations Issued by the Car Service Section of the United States Railroad Administration

Following is a copy of Circular C. S. 2, dated February 15, and addressed to all railroads by the Car Service Section, Division of Transportation, United States Railroad Administration:

(1) In accordance with the provisions of the Proclamation of the President of the United States, dated February 14, 1918, ALL articles of commerce, effective February 20, 1918, shall require an export license from the War Trade Board for exportation via any port or border point to whatsoever destination, except to points in the non-contiguous possessions of the United States.

(For status of Canadian shipments, the articles enumerated in list appended hereto require individual license.)—See INDUSTRIAL CANADA, February issue, page 1493.

(2) You will immediately instruct all concerned that the furnishing of equipment for shipments consigned, reconsigned, to be reconsigned, or intended for export shall be contingent upon

(*a*) The issuance of said license.
(*b*) The presentation of license number.
(*c*) The marking of bill of lading "For Export."
(*d*) The way-bill bearing license number.

(3) Shipper's Export Declaration, of which there shall be four copies, must be eventually delivered to the Collector of Customs at points of exit from the United States. For shipments to non-contiguous possessions Shipper's Export Declaration in duplicate is required.

(4) All shipments are further subject to such regulations and permits as may be required by the various Railroad Committees controlling export shipments.

(5) The Car Service Section of the Division of Transportation of the United States Railroad Administration is authorized to permit the shipment of commodities intended for export prior to the issuance of an export license, if said Car Service Section shall be satisfied that there is storage room available, or that it is the custom of the trade to move such commodities to seaboard for storage or grading.

(6) The foregoing, for the present, will not in any way apply to

(*a*) Any shipments made by or consigned to the Navy Department or War Department or by or to any of the Bureaus or other subdivisions thereof; or

(*b*) Any commodities for the exportation of which a special license has been or shall hereafter be issued by the War Trade Board, dispensing with the requirements of an individual license, such commodities being at present as follows:

(*c*) Any shipments of coal or coke.

(*d*) Any shipments to Canada of commodities other than those in appended statement. (For list see INDUSTRIAL CANADA, February issue, page 1493.)

Bureau Proves of Value

Many Inquiries Being Received by the Toronto Branch's Bureau of Advice and Information of Charities and Advertising Schemes

By H. MACDONALD
Acting Secretary, Toronto Branch, C.M.A.

The Bureau of Advice and Information, recently organized by Toronto Branch, has received numerous and generous tributes of approval by manufacturers. Enquiries concerning all sorts of solicitations constantly reach the Bureau, and many letters stating the belief that people are bewildered by the appeals of so many organizations for money.

Membership in the Canadian Manufacturers Association entitles manufacturers to a service of information of an effective and reliable kind about advertising schemes and charitable agencies soliciting their patronage. The Bureau, consisting of a committee of expert advertisers, possesses extensive records and facilities for investigation, and is equipped to supply ready information about any scheme or organization in the Dominion. The card displayed in the offices of the members will save the annoyance of many personal calls regarding appeals of doubtful merit.

It is not within the province of the Bureau to pronounce judgment on established newspapers and magazines. Its aim is to investigate and report on ephemeral schemes of doubtful merit and to protect the manufacturers from expenditures on unworthy objects.

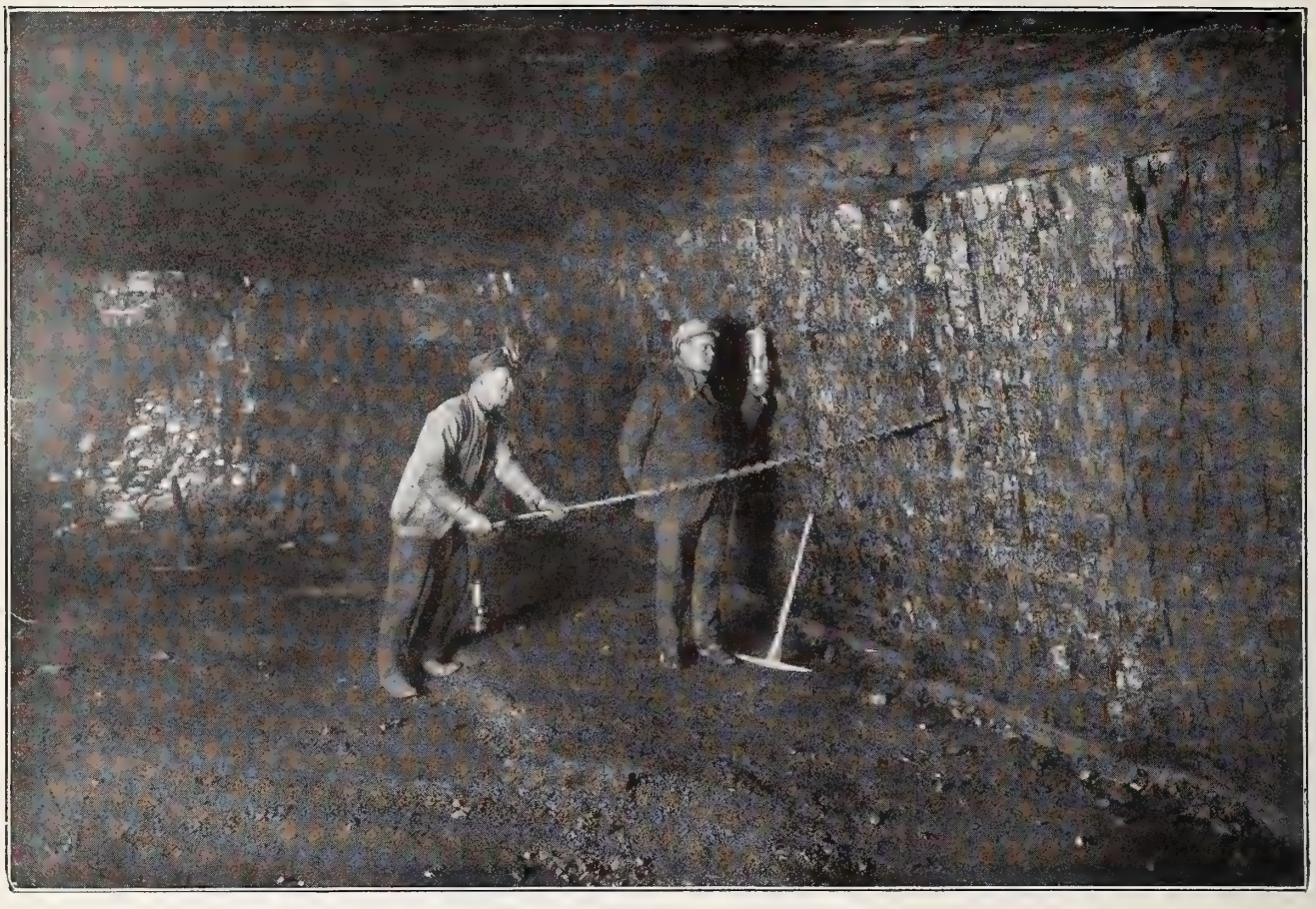
The War Charities Act, 1917, enacts that it shall not be lawful to make any appeal to the public for donations and subscriptions in money or in kind for any charity unless that charity is either exempt from registration or is registered under the Act. This is now the law of the land enacted to protect legitimate charities against those who are soliciting for funds or suport, but it will be ineffectual if individual firms fail to take advantage of it.

In view of the multiplicity of labor publications, it should be noted that the members of the Trades and Labor Council recently went on record as emphatically opposing any application by an outside organization for authority to publish an official publication for any union without charge to the latter. It was decided to warn large corporations and the public generally against people who use the name of labor to secure advertisements while they were not connected with labor in any way.

While the aim of the Bureau is to suppress "fake" advertising, it is of course fully recognized that legitimate advertising is no longer an unconscious factor in human existence but a positive force, a guiding influence in business. Its laudable aim is to direct the will of the crowd regarding all marketable things. Production is not a difficult thing in these inventive days. How to create a market, how to effect an introduction between the commodity and the consumer, how to explain points of difference or superiority between one's own goods and those of competitors, in short, how to sell, is the aim and end of honest advertising. Legitimate advertising itself needs to be protected from unscrupulous exploiters.

CHAIN DRIVEN MOTOR TRUCKS.

A sixteen-page pamphlet detailing the advantages possessed by a chain-driven truck or tractor over gear-driven types has been issued by the Link-Belt Company. Five arguments are produced in favor of the chain drive. These are higher mechanical efficiency, less unsprung weight, semi-elastic driving element, concentration of wear on a part which is easily accessible and variable wheel centers. Each argument is set forth clearly and at length and there are illustrations of tractors and trucks on which the chain-drive is used.



Boring the hole for loading with explosive to break down the coal

Coal Production Dependence on Explosives

As a Force in Civilization, the Part Played by Coal is of Overwhelming Importance, Yet it Could Not be the Power it is Without the Use of Explosives

COAL is one of the most commonplace articles with which we meet every day, and at the same time one of the most romantic. Its possession by a nation or community means comfort and progress, and, at the present time, a strong strategical position from a military standpoint. A country without coal cannot wage a war, cannot progress in manufacture, and, it might almost be said, cannot advance intellectually. Without coal a country is almost in the position of North America three hundred years ago, or in the position of northern Africa, which is without coal.

It is expected that in 1917 the production of coal in the United States will considerably exceed 500,000,000 tons, this being about twice the production of ten years ago, and three or four times the production prior to the introduction of Permissible Explosives for mining coal; and of course it is vastly greater than what would be possible without explosives at all.

Explosives of all kinds, and particularly high explosives, are associated in the popular mind with killing of some kind—either the killing of game in sport, or the killing of people in war or in lawless outbursts of various kinds—and with anarchy, burglary and other lawless activities. It comes as quite a surprise to many people that in normal times the use of explosives for the advancement of civilization is several thousand times the amount used for all other purposes whatever, and that explosives are a necessary part of civilization, just as transportation facilities with their various ramifications, such as good roads, railroads, canals and even such enormous arteries as our Great Lakes transportation system. Large quantities of dynamite are used in the construction of good roads; for quarrying rock, which is later crushed and made into concrete cement for many classes of structures; for rock ballast of railroads; for excavating canals through rock; for deepening channels; and for the construction of the enormous locks of the Great Lakes.

These, however, are all construction work, and we could worry along for a while with our present transportation facilities without the use of explosives, were it not for the fact that the big lake steamships, the steam barges on the canals, and the locomotives on the railroads require coal to generate the power for propelling them from one point to another. This coal is all mined by the use of explosives.

The early uses of mineral coal in England met with ill favor, and the smith who is supposed to be the first industrial user of the innovation, as a substitute for charcoal in his forge, was practically ostracised and lost his patrons because of his so-called heresy.

After a while the prejudice passed away, and the different grades of coal were accepted by the public as a matter of course. The early mines were very crude and small. No conveniences, labor-saving devices, or safety measures were possible. Hand labor picked and hewed and "howked" the coal, so that one man was able to bring down only two and three tons of coal a day. This is perhaps higher than the average, as records of the average output are difficult to

obtain at present, and only the unusual amounts mined by exceptionally strong men were recorded. Black powder, gun powder, or blasting powder—as it is variously called—was used later, and its use resulted in immense increase in the amount of coal mined per man.

The industry grew rapidly and the secret recesses of the world were searched for undeveloped deposits, and coal came into its own. Many improvements were made in the art of mining and measures were taken to reduce the danger.

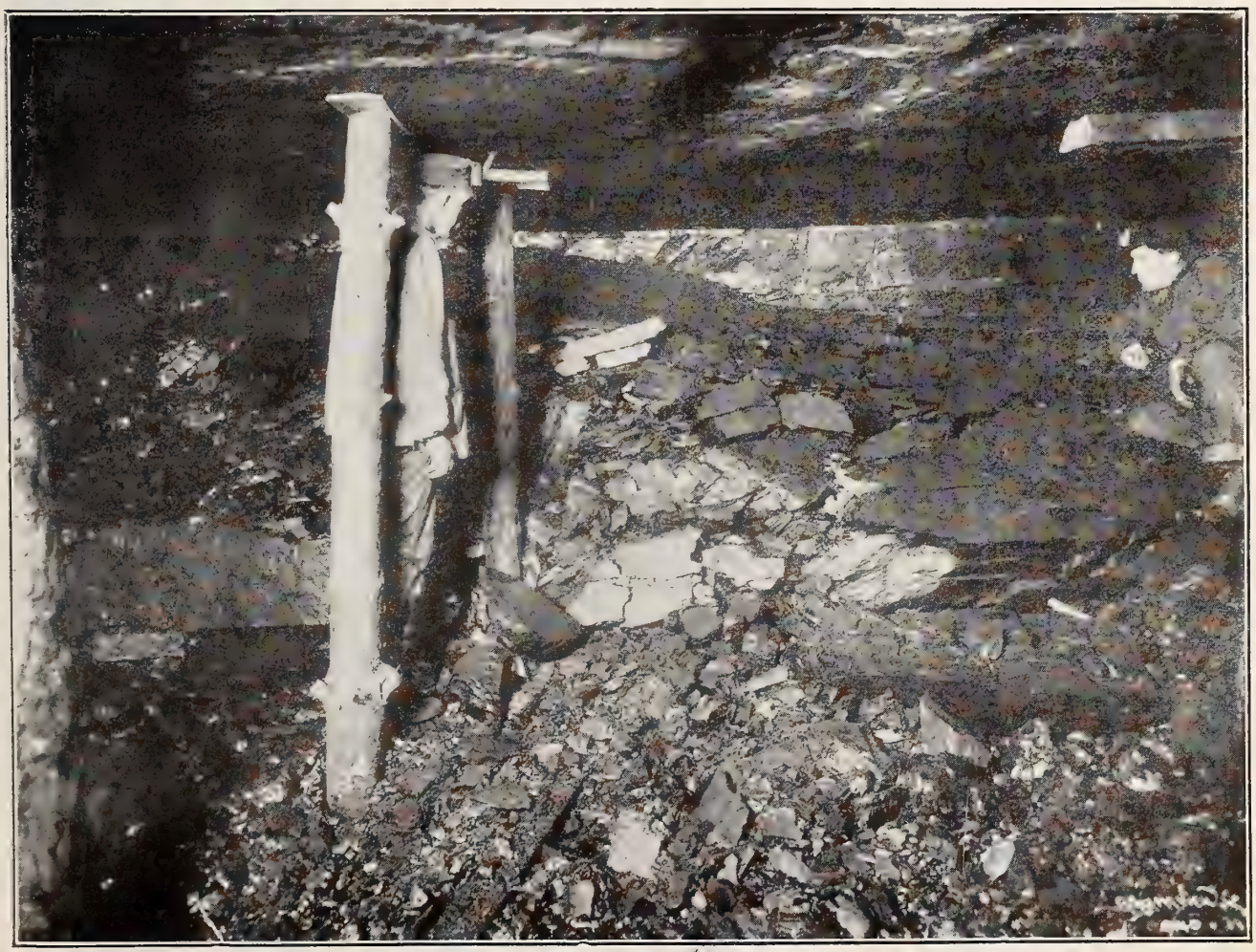
Unfortunately, in the mining of coal a great deal of inflammable gas is encountered; this amount varies in different localities, and some of the mines are filled with gas pockets so that the upper air in the workings is filled with an inflammable mixture of gas and air. Some of these in addition to being gaseous are very dry, and the dust from the coal fills the air just as flour dust, that filled the old-fashioned flour mill, used to form an inflammable mixture with the air. The combination of these two—the gas and the dust—made a mixture which not only was easy to explode, but which, when started, propagated itself throughout the mine workings, and such an explosion nearly always killed every man in the mine. While undoubtedly a large number of disastrous mine explosions were caused by ignition of the gas by miners' candles or lamps, which the introduction of the safety lamp almost eliminated, this was not the only source of danger. The blasting of the coal with black powder, in the presence of gas and dust mixtures, produced a long, hot flame from the charge of black powder in the bore hole which instantly ignited any gas or dust present.

It must be remembered that not all coal mines are gaseous and dusty, and vast quantities of blasting powder are used to-day in producing lump coal in mines which are practically free from gas, and which are so wet that dust does not hang in the air.

Gas and dust explosions in England, France, and Belgium became so frequent that chemists were set to work to devise some explosive which would give a shorter and cooler flame than that produced by black powder. These researches eventually resulted in the production of what are known as "Safety Explosives" or "Permitted Explosives" in Europe, and what are called "Permissible Explosives" in the United States, the difference being that in Europe the national authorities designate what explosives shall be used in the coal mines, whereas in the United States the national Government only specifies which explosives are recommended for use in dangerous coal mines.

Permissible explosives when properly used, and in accordance with the instructions furnished by the manufacturers and the U. S. Bureau of Mines, give a flame of such short length and short duration that ignition of gas or dust mixtures does not take place. Not only this, but the fact that these explosives are made up in cylindrical form and do not have to be poured or broken, makes the handling much safer than black powder, contrary to the popular notion.

Not only do the permissible explosives mark a very great advance in safety, both in the handling of the explosive and its use in blasting, but, when properly used, they result in a greater quantity of coal being produced.



Coal blasted down in the mine and ready to load into cars

War Measures Embargoes of the Government

Issue of Licenses are Now Made on Approval of the Canada War Trade Board at Ottawa—Instructions Issued to Collectors of Customs—Regulations Which are Now in Force Governing Shipments

On February 20th, the Commissioner of Customs instructed Collectors of Customs regarding the Government war measures embargoes, hereafter to be dealt with by the Canada War Trade Board, Ottawa; and under date March 4th, 1918, Customs Memo 2178 B., the Commissioner of Customs issued a further order on the same subject, to Collectors of Customs, as follows:—

Issue of Licenses on Approval of the War Trade Board.

1. By Order-in-Council of 8th February, 1918, under the provisions of the War Measures Act, 1914, "The War Trade Board" has been constituted, with the following powers and duties (among others) viz:—

(*a*) To have direction of Licenses for export, and to make recommendations with regard thereto.

The address of the War Trade Board is Ottawa, Canada.

2. Except as otherwise hereinafter provided, Licenses in respect of goods specified as prohibited in Memo. 2172 B. for export to British countries and countries in alliance with the British Empire, may be issued direct by Collectors of Customs when the application is approved in special cases by the War Trade Board, Ottawa, applications so approved to be retained on file by Customs Collectors.

3. The regulations set forth in Memo. 2172 B. in regard to the issue of Licenses for the export of goods marked ("D") subject to the approval of the Canada Food Board or Board of Grain Supervisors, are continued in force.

4. *All other instructions heretofore given to Collectors of Customs, permitting them to issue Licenses for the export of prohibited goods are hereby withdrawn*—except in regard to shipbuilding materials, munitions and gun mounts manufactured in Customs Sufferance Warehouses, and in regard to silver spruce, and guns and rifles exported for repairs.

5. In respect of shipments to Switzerland of any goods in List "F" of Memo. 2172 B., licenses will be issued by the Department of Customs.

6. The undermentioned goods may be licensed for export to the United States under the following special conditions until otherwise ordered:—

Fish Oils other than Whale Oil or Cod Liver Oil. *Pickled Sheep Skins.*	May be licensed by Collectors of Customs for export to United States when consigned to *"The Tanners' Council of the United States of America, Inc. of the District of Columbia."* Notify (here show name and address of importer).
Rubber, all kinds, including scrap rubber.	May be licensed by Customs Collectors for export to United States when consigned to the *"Rubber Association of America, Inc."* Notify (here show name and address of importer).
Mica. *Canadian Sheep Skins. Wooled or haired.*	May be licensed by Customs Collectors for export to the United States when consigned to, or endorsed to, the *"Textile Alliance, Inc., of New York."* Notify (here show name and address of importer).

NOTE.—Parties desiring to protect shipments of any of the above commodities by preserving bankers' lien need not consign the goods to the Associations named, but in that event the Bills of Lading should be drawn to the order of, or endorsed to, the appropriate trade association.

7. In special cases where applications for the export of any of the following goods are approved by the War Trade Board (Ottawa), the instructions to Customs Collectors respecting the issue of licenses therefor will be sent from the Department of Customs, viz:—

Acid, Carbolic.
Acid, Nitric.
Acid, Sulphuric.
Aeroplanes and parts.
Cartridges.
Explosives.
Fire Arms.
Ordnance—Cannon, etc.
Machine Gun parts.
Military Rifles and parts.
Munitions of war.
Machinery for the manufacture or production of munitions of war.
Ships.
Whale Oil.
Cobalt, ores, metals, oxides and salts.
Manganese ores and metals.
Molybdenum ores and metals.
Nickel
Nickel matte and ore.
Titanium ores and metal.
Tungsten.
Vanadium ores and metals.
Ferro-Chrome.
Ferro-Manganese.
Ferro-Molybdenum.
Ferro-Silicon.
Ferro-Titanium.
Ferro-Tungsten.
Ferro-Vanadium.
Spiegeleisen.

NOTE.—The schedule appended hereto contains a list of articles, which if imported into the United States require a license to the United States importer from the War Trade Board, Washington, D.C., before their release at point of final destination. The schedule also contains a list of certain trade associations in the United States.

JOHN McDOUGALD,
Commissioner of Customs

SCHEDULE (FOR PUBLIC INFORMATION).

List of articles which, if imported into the United States, require a license to the United States importer from the War Trade Board, Washington, D.C., before their release at point of final destination (as specified in the President's Proclamation, dated November 28, 1917):—

Antimony, antimony ore, or any chemical extracted therefrom.
Asbestos.
Beans of all kinds.
Balata.
Burlap.
Castor seed, castor oil.
Cotton.
Chrome, chrome ore, or any ferro-alloy or chemical extracted therefrom.
Cocoanut oil.
Cobalt, cobalt ore, or any ferro-alloy or chemical extracted therefrom.
Copra.
Industrial diamonds.
All ferro-alloys.
Flax.
Gutta joolatong.
Gutta percha.
Gutta siak.
Hemp
Hides and skins.
Jute.
Iridium.
Leather.
Manganese, manganese ore, or any ferro-alloy or chemical extracted therefrom.
Mica.
Molybdenum, molybdenum ore, or any ferro-alloy or chemical extracted therefrom.
Naxos emery and naxos emery ore.
Nickel, nickel ore, matte, or any ferro-alloy or chemical extracted therefrom.
Sodium, potassium or calcium nitrates.
Optical glass.
Palm oil.
Platinum.
Plumbago.
Pyrites.
Rice.
Rubber, raw, reclaimed, waste or scrap.
Scheelite.
Shellac
Sisal.
Soya bean oil.
Spiegeleisen.
Sugars
Tanning materials.
Tin in bars, blocks, pigs, or grain or granulated.
Tin ore and tin concentrates, or any chemical extracted therefrom.
Titanium, titanium ore, or any ferro-alloy or chemical extracted therefrom.
Tobacco.
Tungsten, tungsten ore, or any ferro-alloy or chemical extracted therefrom.
Vanadium, vanadium ore, or any ferro-alloy or chemical extracted therefrom.
Wheat and wheat flour.
Wolframite.
Wool.

List of Trade Organizations in the United States which control the distribution of certain imports after arrival in that country.

Asbestos Trades Bureau.
Asbestos.

American Diamond Committee, Inc.
Diamonds.

American Iron and Steel Institute.

Ferro Alloys.	*Ores.*	*Metals*
Ferro-Manganese	Chrome ore	Chrome
Spiegeleisen	Cobalt ore	Cobalt
Ferro-chrome	Manganese ore	Manganese
Ferro-titanium	Molybdenum ore	Molybdenum
Ferro-tungsten	Titanium ore	Titanium
Ferro-molybdenum	Tungsten ore	Tungsten
Ferro-vanadium	Vanadium ore	Vanadium
All other ferro-alloys	Kindred ores	Kindred metals

Tin
Tin ore
Chloride of tin

Plumbago Graphite Association.
Plumbago and Graphite.

Rubber Association of America, Inc.
Crude Rubber (including Gutta Joolatong).
Gutta Percha, Balata, Gutta Siak, scrap rubber, reclaimed rubber.

Tanners' Council of U. S. of America.
All leather raw stock (hides and skins, including all pickled hides and skins and all India tanned or rough tanned hides and skins, not finished leather).
All materials for tanning or dressing leather and all substances from which tanning materials can be extracted.
All imported finished leathers.

Textile Alliance, Inc.
Wool and animal hair, and the tops, noils, yarn and waste of same and Woollen Rags and Crepe Fibre.
Skins, sheep—woolled or haired.
Skins, lamb—woolled or haired.
Skins, goat—haired.
Skins, kid—haired.
Jute and Burlap, and Jute or Burlap Bags.
Cotton and Flannelette Raisings.
Flax.
Linen.
Mica.
Palm Oil and Palm Kernel Oil.

United States Shellac Importers' Association, Ic.
Shellac.

Linen Yarn and Linen Thread: By Order issued March 4th, 1918, linen yarn and linen thread are prohibited to be exported from Canada to any but British countries except under license.

Hat Plaits, per sample, ruled to be free of duty under tariff item 641.

Item 1009 of the tariff ruled not to be restricted to steel, hot rolled, only.

Knife Blanks, per sample, ruled to be dutiable under tariff item 425.

Metalkase Magnesite Firebrick, ruled to be free of duty under tariff item 281, as being firebrick of a class or kind not made in Canada.

Beam Truck Apparatus for use in cotton mills in weaving operations, ruled to be entitled to entry under item 468 when of a class or kind not made in Canada.

CUSTOMS ORDERS AND RULINGS.

The following Orders-in-Council and Customs Rulings, affecting foreign trade, have been issued by the Commissioner of Customs, viz:—

Settlers' Effects: On the 8th instant by Order-in-Council the regulation for free entry of settlers' effects was extended to include vehicles and implements moved by mechanical power if actually owned abroad by the settler for at least six months before his removal to Canada. This privilege, under the Order-in-Council, applies throughout the period of the war.

Farmers' Outfits: In order to meet the urgency for increased production of foodstuffs, the Commissioner of Customs has instructed Collectors that during the present year free entry may be allowed of teams, vehicles, implements and other outfits which have been in use abroad for farming purposes, conditional on exportation prior to December 31st, 1918, and subject to the following conditions:—

(*a*) Articles above described shall be duly reported inwards at the Customs Frontier Port, with such description and valuation as will enable the Customs Officer to identify them on leaving the Dominion.

(*b*) The owner of the farming outfit shall give an undertaking to the satisfaction of the Collector that the outfit for which temporary admission is applied, is to be used in good faith for farming purposes, and will be exported in due course on or before 31st December, 1918.

(*c*) He will also require to furnish a guarantee for payment of Customs duty, in default of the due exportation of the outfit.

(2) During the period specified for the return of the outfit, the owner may enter same free of duty as settlers' effects, upon the usual declaration, if, in the meantime, he has taken up land and becomes a bona fide settler in Canada.

(3) The guarantee shall be signed by the owner of the outfit, and by one freeholder resident in Canada, and shall remain on file with the Customs Officer at the port of entry.

Neat Cattle: By Order-in-Council of the 8th instant, neat cattle imported during the period of one year from the 7th day of February, 1918, may be entered free of duty when imported by bona-fide residents of Canada under regulations by the Minister of Customs.

Coasting Trade: By Order-in-Council of the 5th instant, the Minister of Customs is authorized to permit vessels of the United States of America to engage in the Coasting Trade of Canada, temporarily, during the period of the war.

Machine Planers: An Order-in-Council of the 8th instant prohibits the exportation of machine planers of metal, except under license.

ADDITIONS TO LIST OF UNITED STATES COMMODITIES REQUIRING EXPORT LICENSES.

Journal Number 6 of the War Trade Board, Washington, issued February 11th, 1918, announces that the following commodities have been placed on the Conservation List and will require licenses from the Bureau of Exports for exportation to any country of the world unless the shipment is covered by ocean and / or through railroad bill of lading, dated on or before February 11, 1918: Macaroni, spaghetti, vermicelli, noodles, crackers, biscuits, wheat cereals and other products made from wheat, rye flour, rye meal, linseed meal, plate rolling mills, open-hearth blast furnaces, steel furnaces, rubber and all commodities containing rubber.

On February 14th the President of the United States issued a proclamation which, in effect placed a war measure embargo against the importation or exportation of any goods.

As regards Canada and Newfoundland, on the 16th instant the United States War Trade Board made the following ruling:—

"*Canada and Newfoundland.* Hitherto only certain goods have required an individual license when shipped to Canada and Newfoundland. This rule will continue to be in full force and effect only those commodities mentioned in the

War Trade Board Journal No 4, January 21, 1918, in front of which a star appears, will require an individual license when shipped to Canada and Newfoundland. In the case of shipments to Canada and Newfoundland of goods which are not starred in Journal No. 4, the shipper need only apply to any Collector of Customs, who will accept his export declaration without an individual license."

This was amplified by a further Order of the United States War Trade Board, dated February 20th, as follows:—

General Blanket License to Canada.

A general blanket license has been issued to-day permitting without individual import licenses, the importation of all commodities from Canada with the exception of those mentioned in the President's Proclamation of November 28, 1917, this to be in force until revoked by the Bureau of Imports.

With respect to shipments from all other countries, importers are urged to make haste in sending to the Bureau of Imports, Washington, D.C., their application for import licenses."

FOREIGN TRADE OF CANADA

(Comparison 1916, 1917, 1918.)

IMPORTATIONS.

	Month of January.			Ten Months Ending January.		
	1916.	1917.	1918.	1916.	1917.	1918,
Dutiable Goods	$27,504,149	$39,855,400	$34,257,484	$225,454,635	$370,646,468	$460,976,855
Free Goods	22,666,516	32,467,674	26,419,930	168,639,355	304,318,080	362,082,846
Total	$50,170,665	$72,323,074	$60,677,414	$394,093,988	$674,964,548	$823,059,701
Coin and Bullion	11,716,848	2,928,278	526,869	31,618,851	25,922,701	10,774,845
Grand Total	$61,887,513	$75,251,352	$61,204,283	$425,712,839	$700,887,249	$833,834,546
Duty Collected	$9,962,556	$12,762,621	$10,542,643	$81,267,860	$119,141,351	$136,339,474

EXPORTATIONS.

(Month of January.)

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$4,654,815	$7,122	$6,836,464	$4,025	$5,528,992	$249,119
The Fisheries	2,437,715	55,697	2,784,824	106,940	3,390,587	87,074
The Forest	3,243,360	39,944	3,695,352	181,227	3,110,324	6,715
Animals and their Produce	10,203,827	359,454	11,745,761	1,114,120	15,918,079	1,522,927
Agricultural Products	15,402,976	39,927	22,550,924	938,014	26,390,294	310,227
Manufactures	47,015,283	1,112,972	50,814,082	768,248	41,383,115	1,230,299
Miscellaneous	773,208	100,746	678,852	333,233	494,893	123,539
Total Merchandise	$83,731,184	$1,715,862	$99,106,259	$3,445,807	$96,216,284	$3,529,900
Coin and Bullion	200	112,536	9,560	133,929	49,210	182,628
Grand Total Exports	$83,731,384	$1,828,398	$99,115,819	$3,579,736	$96,265,494	$3,712,528

EXPORTATIONS.

(Ten Months Ending January.)

	1916		1917		1918	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$53,688,992	$7,272,181	$70,562,024	$206,740	$61,027,608	$952,104
The Fisheries	18,541,413	141,642	20,860,380	278,352	24,900,767	427,592
The Forest	45,428,289	424,033	49,833,800	486,214	45,622,438	57,818
Animals and their Produce	88,763,256	2,553,417	105,332,667	5,030,620	152,271,401	6,380,597
Agricultural Products	217,909,912	17,150,981	340,002,369	6,068,031	501,728,297	9,489,422
Manufactures	166,414,552	6,865,568	368,655,496	6,931,919	564,256,545	19,650,569
Miscellaneous	4,518,818	1,283,835	5,489,336	1,468,893	4,004,128	1,916,622
Total Merchandise	$595,265,232	$35,691,657	$960,736,072	$20,470,769	$1,353,811,184	$38,874,724
Coin and Bullion	315	103,263,555	85,952	196,104,655	287,143	2,685,679
Grand Total Exports	$595,265,547	$138,955,212	$960,822,024	$216,575,424	$1,354,098,327	$41,560,403

CHINA'S NEW TARIFF LAW.

Divides Commodities into Four Classes, with a Diminishing Rate of Duty.

A bill for the revision of tariff on imports from all countries other than those with which China has treaty provisions has been passed by the Chinese Government and will go immediately into effect. The bill divides commodities into four classes as follows: Luxuries, the rate on which shall be from 30 to 100 per cent.; semi-luxuries, from 20 to 30 per cent.; raw materials, 10 to 20 per cent.; and necessities, 5 to 10 per cent. The actual determination of rates for each of the four classes is in the hands of a committee which will be appointed from the boards of finance, agriculture and commerce, and customs.

Neither this new law nor the committee about to be formed has any connection with the International Commission for the Revision of the Maritime Customs Duties now sitting in Shanghai. The latter is working on the treaty agreements made by China with the United States and certain other nations originally in 1858 and revised in 1902. Steady increase in the prices of numerous articles imported has resulted in a corresponding decrease in the effective rates of duty and a loss in revenue, a condition that could not be remedied by the Chinese Government on account of an agreement concluded with the foreign powers after the signing of the Boxer Indemnity Protocol of 1901. It is understood that the Chinese Foreign Office has requested the Shanghai commission to impose a surtax on import duties sufficient to make the amount equal to the normal rate of 5 per cent. *ad valorem*, and the Allied Ministers have unanimously indorsed the request, recommending to their respective Governments that the delegates be authorized to fix the amount of the surtax before the work of general tariff revision is taken up. Action for the greater protection for trade marks has also been urged by Shanghai papers, but it is not believed that the commission will have time to go into this subject at the present sitting.



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WE have, we believe, the finest facilities in this country for the supply of high-grade SPRUCE and PINE Lumber. From forest to the time the Lumber reaches you the quality is maintained by rigid inspection and careful handling.

"BEAVER BRAND" White Cedar Shingles are equally famous in Canada for uniform good quality and full count.

Monthly Stock Lists and Quotations on Request

Bathurst Lumber Co.
Limited

Bathurst - - New Brunswick



B.C. Supplying Needed Spruce

Minister of Lands States that Under Recent Legislation Supply is Proving Satisfactory

In moving the second reading of an "Act respecting the cutting of spruce timber for use in aeroplane construction," in the British Columbia Legislature, Hon. T. D. Pattullo, Minister of Lands, stated that within forty-eight hours of the passing of the order-in-council, to ratify which the bill was introduced, good results followed.

The Minister outlined the steps which had led up to the action of the Provincial Government in passing the order-in-council, whereunder the needs of the Imperial Munitions Board for spruce are now being met and still greater production will be possible. He believed it would be superfluous to enlarge upon the necessity of such a measure. Up to June last there had been a steady but slow increase in the production of spruce, but the amount produced in British Columbia was small. In July the Imperial authorities had invited the department to advise as to the best methods of increasing production. It was apparent the increasing of prices would not get results, that increased production would involve much moving of logging machinery, etc., from ordinary work to the spruce areas, and speed was an essential factor. Following negotiations the Imperial authorities sent an inspector to British Columbia, and the Department of Aeronautical Supplies was formed, with headquarters at Vancouver and under the charge of Major Taylor.

Investigation of what the United States was doing was made by the department, and it was found the bulk of their spruce was going to Great Britain and her Allies, but leaving the States short of adequate supplies. As the Department of Aeronautical Supplies did not appear to be endowed with authority to take over spruce areas, and much time would be wasted in negotiations with owners, the Department of Lands decided to pass the order-in-council authorizing the Minister of Lands to enter upon any lands whereon the required spruce could be got and logging them to the fullest extent required.

The bill before the Legislature, Hon. Mr. Pattullo explained, ratified the order-in-council passed three months ago, and amended the Forest Act so far as spruce was concerned by eliminating the requirements as to advertising and other procedure. The bill suggested drastic action, he admitted, but it was fully justified by the results. The action of the Government had been heartily approved by the Imperial authorities and other bodies having to do with speeding up of war work, and so successful has been the outcome that at the present time the requirements of the Imperial Munitions Board for spruce supplies for aeroplane purposes was being met.

Hon. Mr. Pattullo stated that under the act any man who can show he can maintain a stipulated monthly output and would agree to sell only to the Munitions Board could get orders. Several large factories and several smaller concerns are working on the manufacture of the logs. It was arranged between the Munitions Board, the operators and the department that somewhat higher prices should be paid under conditions which permitted of forced entry by the Government on to spruce areas, and so far there had been no complaint heard as to prices. The results had proved better than expected, and business had been stimulated, the Minister claimed.

A wind storm on the night of Feb. 25th wrecked an ore bridge belonging to the Canadian Furnace Co., Port Colborne, the damage being about $100,000.

Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES.

54. **Tin Foil.**—A local user of considerable quantities of tin foil would like to hear from Canadian manufacturers of this material.

55. **Car Stake Pocket.**—A Western manufacturer, controlling the patent on car stake pockets for logging cars, is interested in hearing from Eastern manufacturers who would be likely to make these pockets on a royalty basis for the territory east of Port Arthur.

56. **Oxide.**—A member in Quebec is interested in an Oxide Mine, which he claims produces a high grade quality of oxide, and it is located near the railroad. He will be ready to send samples to anyone interested in purchasing such a mine.

IMPORT TRADE ENQUIRIES.

57. **Aniline Dyestuffs.**—A Bradford correspondent is interested in getting into communication with textile manufacturers or firms in other industries who are utilizing Aniline Dyestuffs.

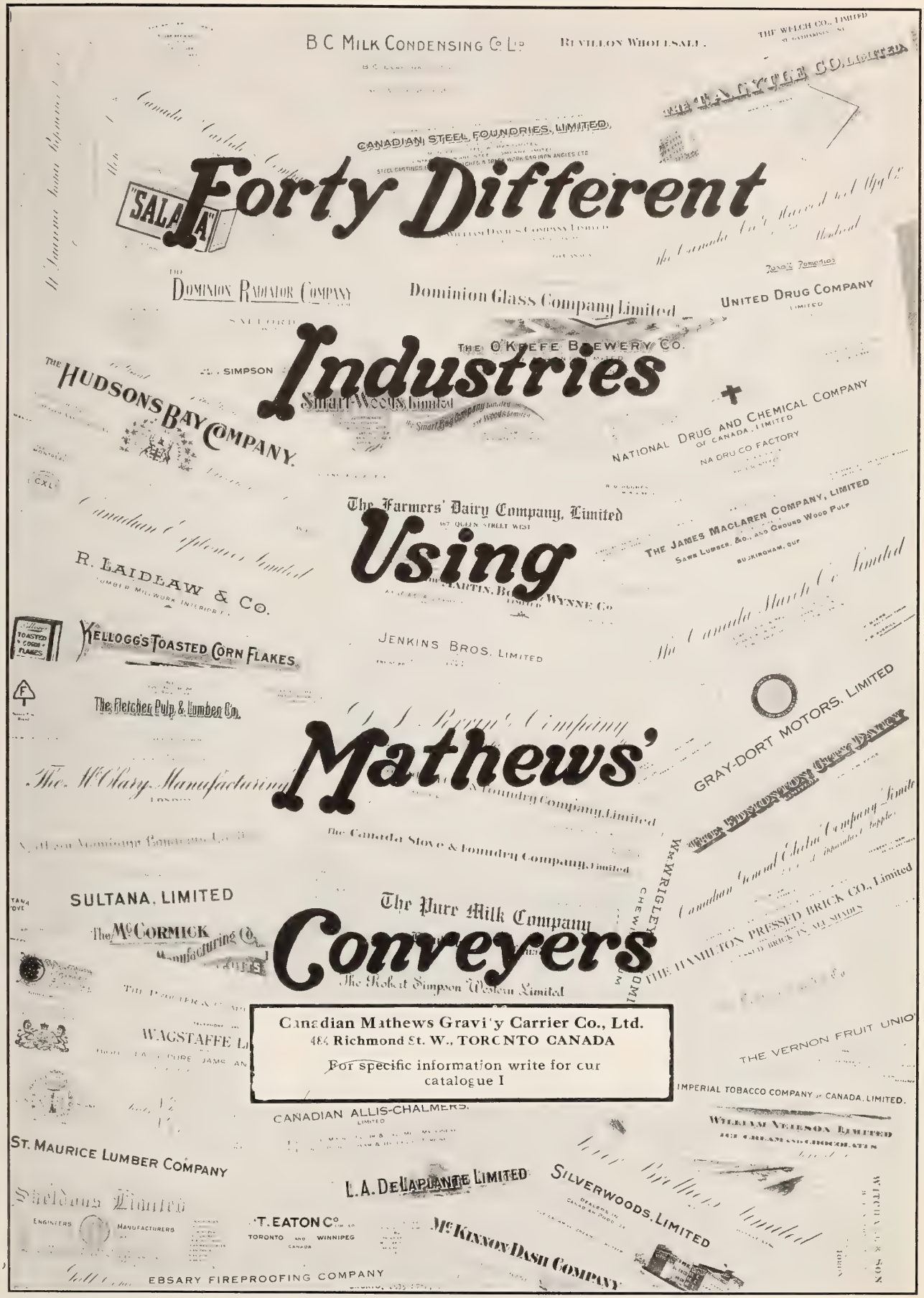
58. **Screw-Driving Machines.**—A well-known English house has patented an automatic magazine screwdriver, which can be attached to any drilling machine. This machine has been used very largely in all sorts of war work, and a great measure of success is claimed for it. We have been provided with a list of some of the firms who are using the screwdriver, and, if any Canadian manufacturers are interested, we shall be able to give them prices and other information.

EXPORT TRADE ENQUIRIES.

59. **Australia.**—A Manufacturers' Agent, representing a number of Sheffield houses, would like to hear from Canadian manufacturers of wire gauze in all gauges, mesh and lengths, in various materials. He is desirous of securing, if possible, the Australian agency for these goods, and states his ability to arrange payment in London, Montreal, or New York.

60. **Australia.**—A firm of Manufacturers' Agents in Sydney, covering all Australasia on a purely commission basis, would like to hear from Canadian manufacturers desiring representation there.

61. **Brazil.**—A Commission Agent in Brazil is desirous of hearing from Canadian manufacturers interested in that market, particularly in the following lines: White zinc, printing and lithographing ink, calcium carbide, granulated and lump; dry common codfish, 128 pound barrels and 64 pound half-barrels; iron shovels, railway tools, locks, door brass hinges and butt hinges, black and white metal spring snap fasteners. References and further information as to sale terms can be supplied on application.


Forty Different
Industries
Using
Mathews'
Conveyers
B C Milk Condensing Co. Ltd.
Revillon Wholesale
The Welch Co., Limited
Canadian Steel Foundries, Limited
"Salada"
The Dominion Radiator Company
Dominion Glass Company Limited
United Drug Company
The O'Keefe Brewery Co.
The Hudsons Bay Company
Robt. Simpson
Smart-Woods Limited
National Drug and Chemical Company of Canada, Limited
Na-Dru-Co Factory
The Farmers' Dairy Company, Limited
The James MacLaren Company, Limited
Saws Lumber, &c., and Ground Wood Pulp
Buckingham, Que.
R. Laidlaw & Co.
Kellogg's Toasted Corn Flakes
Jenkins Bros. Limited
The Fletcher Pulp & Lumber Co.
Gray-Dort Motors, Limited
The Canada Stove & Foundry Company, Limited
Sultana, Limited
The McCormick Manufacturing Co.
The Pure Milk Company
The Robert Simpson Western Limited
Canadian Mathews Gravity Carrier Co., Ltd.
484 Richmond St. W., Toronto Canada
For specific information write for our catalogue I
Canadian Allis-Chalmers
The Hamilton Pressed Brick Co., Limited
The Vernon Fruit Union
Imperial Tobacco Company of Canada, Limited
William Neilson Limited
Wagstaffe Limited
St. Maurice Lumber Company
Sheldons Limited
Engineers Manufacturers
L. A. DeLaplante Limited
Silverwoods, Limited
T. Eaton Co.
Toronto and Winnipeg
McKinnon Dash Company
Ebsary Fireproofing Company
Watch Case & Jewellery Co.

62. **Jamaica.**—A correspondent in Kingston, formerly in a Government office, is desirous of renewing his connection with active commerce. He wishes to hear from firms interested in selling condensed milk, flour, shoe polishes, patent medicines, stationery and glassware. He furnishes us with references as to his ability and integrity.

63. **New Zealand.**—A firm of leather goods importers in Christchurch, wish to get in touch with Canadian manufacturers of allied lines. They are prepared, when necessary, to establish letters of credit, although usually they prefer firms that they do business with to draw on them at thirty days' sight, documents against acceptance. They offer the names of numerous English and American firms as references and mention their Australian bankers and London agents.

64. **South Africa.**—A Commission Agent in South Africa, who is already doing considerable business for well-known Canadian paper-houses, is desirous of adding some allied lines, and comes to us well recommended.

65. **South Africa.**—A Canadian with seven years' experience in South Africa, is desirous of securing some good Canadian agencies for that country.

66. **Italy.**—A well-known house of Commission Agents in Naples is interested in getting in touch with Canadian manufacturers who may be able to export profitably to that country.

67. **Dowels.**—A New York export house has orders to execute for some of their overseas clients and wish to get in touch with Canadian manufacturers of this product.

68. **Cuba.**—An established agent in Havana, who already represents one Canadian manufacturer there, would like to hear from other manufacturers of food products with a view to assisting in the sale of their goods there.

69. **Trinidad.**—We are in communication with the Canadian agents of a well-known Trinidad house desirous of finding Canadian firms who are ready to export foodstuffs, building materials, matches, etc., to that country.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE.

70. **Apple Rings.**—A Gloucester firm wants apple rings.

71. **Canned Fish.**—A Bristol firm would be glad to hear from Canadian exporters of canned fish.

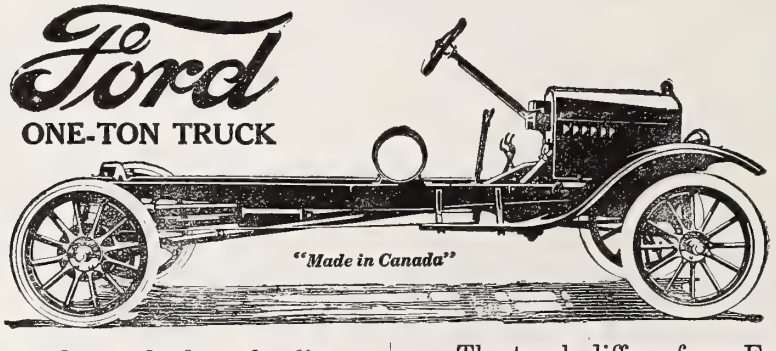
72. **Leather, Boots and Shoes, Dried Fish.**—A commission agent in Catania, Italy, would like to hear from Canadian producers of tanned hides, boots and shoes and dried fish.

73. **Dried Fish and Lumber.**—A firm of agents in Leghorn and Florence would welcome negotiations with Canadian concerns prepared to export to Italy, codfish, dried fish, lumber for construction purposes, asbestos, and wood-pulp.

74. **Lumber, Salted Fish and Metals.**—An important firm of commission agents in Catania, Italy, with good references, and one of whose proprietors is the Belgian Consul in Catania, is desirous of entering into relations with Canadian houses prepared either now or after the war to export to Italy lumber for construction purposes, salted fish, and metals.

FOR TON TRUCKING PURPOSES

Ford
ONE-TON TRUCK



BUSINESS men everywhere who have hauling or delivering problems to consider—whether operating a wholesale business, a retail store, or a farm—will welcome the arrival of the Ford One-Ton Truck.

Heretofore, the Ford user who wanted to carry loads up to a ton found it necessary to get one of several special attachments or extensions which were on the market. Now the standard Ford truck is available—a car that can withstand the drudgeries of commercial use, and yet lacks superfluous weight, and is easily handled.

The truck differs from Ford passenger cars in that it is specially designed throughout in proper pattern and strength for heavy-duty service. It has a final drive of the worm gear type, so that all gears are enclosed. Rear wheels are equipped with solid tires. Front tires are pneumatic. Standard Ford motor, transmission and ignition.

The largest truck and automobile company in the British Empire, with an organization of more than 700 Canadian dealers stands back of every Ford truck purchased.

Price $750 f.o.b. Ford, Ont. Supplied as chassis only

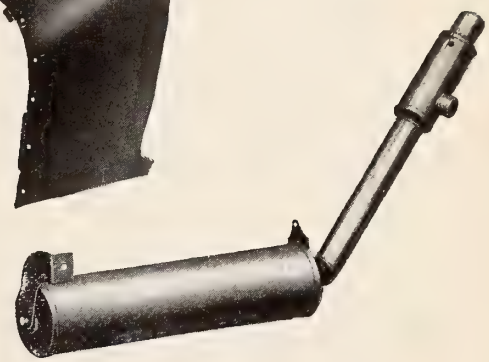
SEE ANY FORD DEALER IN CANADA, OR WRITE FOR A CATALOG

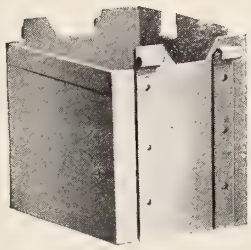
Ford Motor Company of Canada, Limited . . Ford, Ontario

SPECIALISTS IN SHEET METAL STAMPINGS

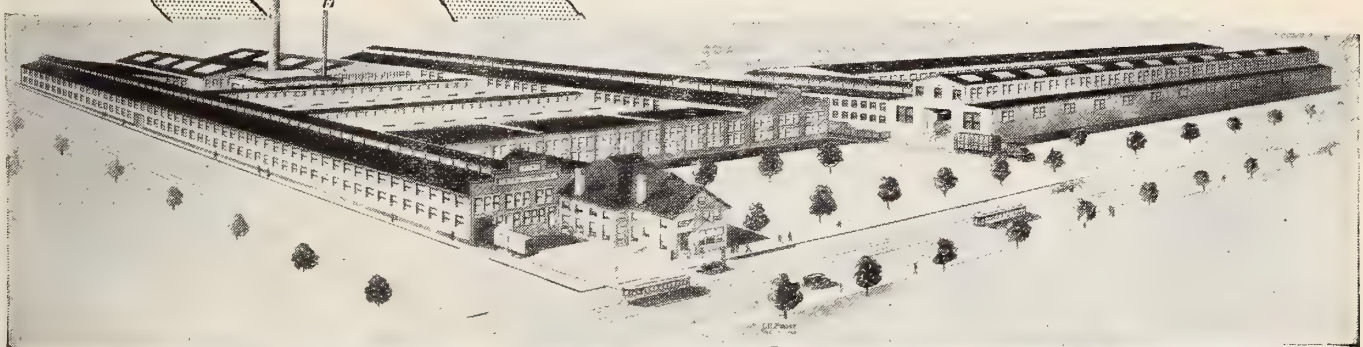
A Modern Plant, conveniently located, with a complete equipment, comprising batteries of heavy presses, hammers, etc., together with a mechanically trained organization, are at your service for the manufacture of stamped and deep drawn metal work. Are you getting satisfactory service at present? If not, let us give you a quotation.











THE PEDLAR PEOPLE LIMITED

Manufacturers of

PEDLAR'S "PERFECT" SHEET METAL PRODUCTS

OSHAWA

75. **Metals, Wire, Beams and Shovels.**—A firm in Florence, with Italian Government connections and branches in Bologna and Leghorn, is disposed to treat with Canadian manufacturers of copper and brass in small tubes or sheets, copper wire, antimony, nickel, zinc, shovels, iron beams for construction purposes, iron wire and brass wire.

76. **Boots and Shoes.**—A Newfoundland firm is open to transact business with Canadian manufacturers of boots and shoes.

77. **Tanners.**—A firm dealing in general merchandise in Newfoundland asks to be put in touch with Canadian tanners.

78. **Box Shooks.**—A Natal firm of tea packers asks for quotations per 1,000 boxes or shooks for tea packing. Wood must be non-odorous and free from knots. Sizes required may be obtained from the Commercial Intelligence Branch of the Department of Trade and Commerce.

79. **Foodstuffs, including Cheese, Condensed Milk and Tinned Fish.**—A Transvaal commission house seeks the Transvaal representation of Canadian foodstuffs, except flour, and in a special way asks for correspondence from exporters of cheese, condensed milk and tinned fish.

80. **Creosote.**—Quotations are asked for by a South African office on a very large quantity of creosote. Specifications and other details may be obtained from the Commercial Intelligence Branch of the Department of Trade and Commerce.

81. **Harrows.**—A Johannesburg firm is anxious to represent in South African centres Canadian manufacturers of the special class of drag harrow, of which particulars and illustrations can be given by this office or by the Department in Ottawa.

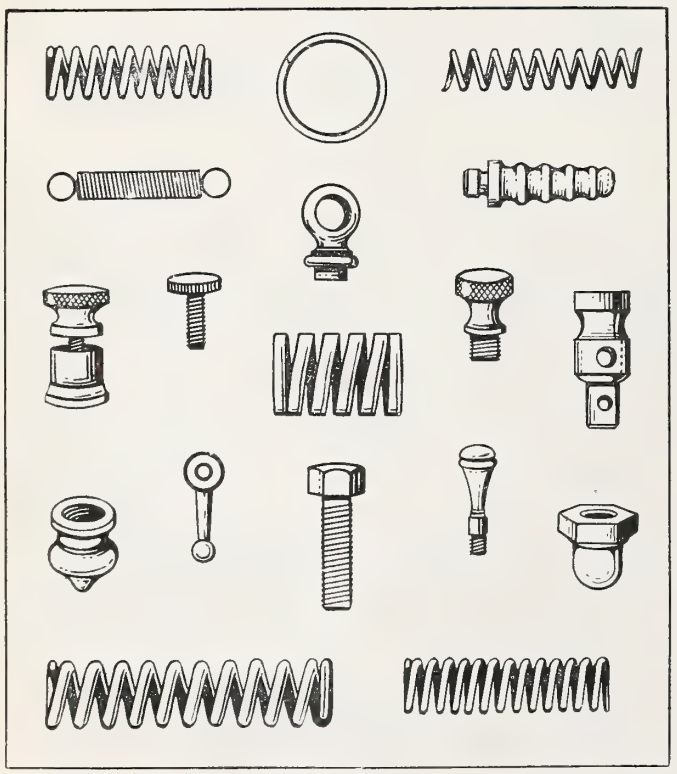
PRESERVATION OF SALMON.

Important International Conference Was Held Last Month at Vancouver on This Question.

A conference was held in Vancouver, on the 23rd of January, between members of the Washington Fisheries Association and the British Columbia Salmon Canners' Association, to discuss the preservation of salmon, especially the protection of sockeyes, which spawn in the Fraser River. Representatives of the Canadian Government have also gone to Washington, to meet American Fisheries officials, in reference to Fisheries problems on the Pacific Coast. Inasmuch as Fisheries in the United States are under State Control, it is not likely that any change in the existing regulations will be effected in 1918, as the Washington State Legislature does not meet this year.

The British Columbia salmon pack of 1917 was the largest on record, amounting to 1,557,485 cases, made up as follows:

	Cases.
Sockeyes	339,848
Red Springs	48,630
White Springs	27,646
Chums	475,273
Pinks	496,759
Cohoes	157,589
Bluebacks and Steelheads	11,748
Total	1,557,485



Our equipment is modern in every way and of capacity to give our customers that prompt service so desirable.

We are yours to command for:

Sheet Metal Stampings in all metals

Screw Machine Products

Small Coil Springs in Steel, Brass, Bronze and German Silver

Formed Wire Products

Workmen's Badges of all kinds

CARON BROTHERS

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233-239 Bleury Street - - MONTREAL

The Canadian Appraisal Company Limited

THE COMPANIES ACT AMENDMENT ACT, passed by the Dominion Parliament and assented to on September 20th, 1917, provides under Section 105, Paragraph 3, that every balance sheet shall be drawn up so as to distinguish severally certain specified classes of assets and liabilities. The value of Lands, Buildings and Plant must be shown on the balance sheet separately from Goodwill, Patents, Leases, Franchises, etc.

The best auditors in the country appreciate the necessity of having the permanent or fixed assets established on the basis of an Appraisal and embodied in a Certificate of Values by The Canadian Appraisal Company, Limited.

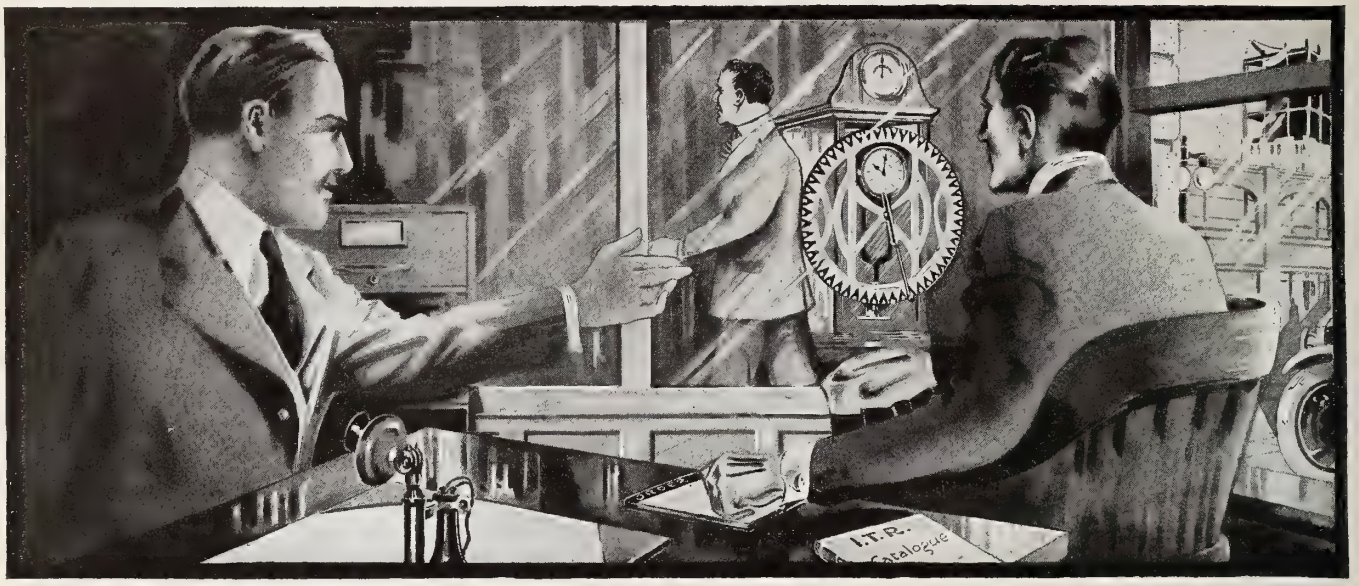
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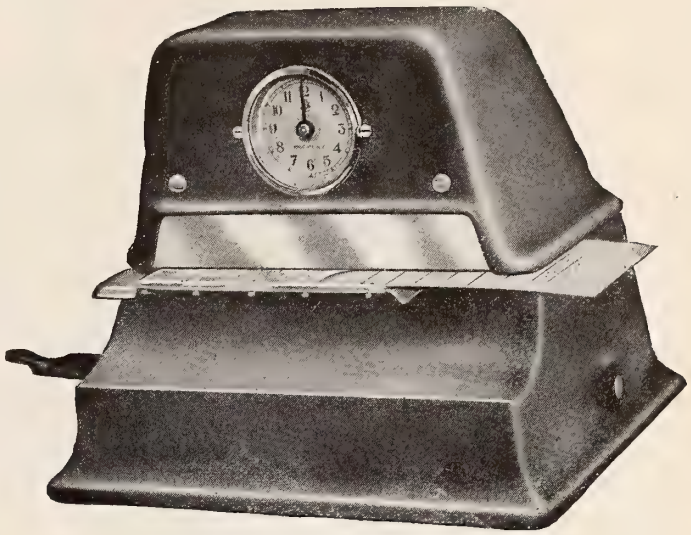
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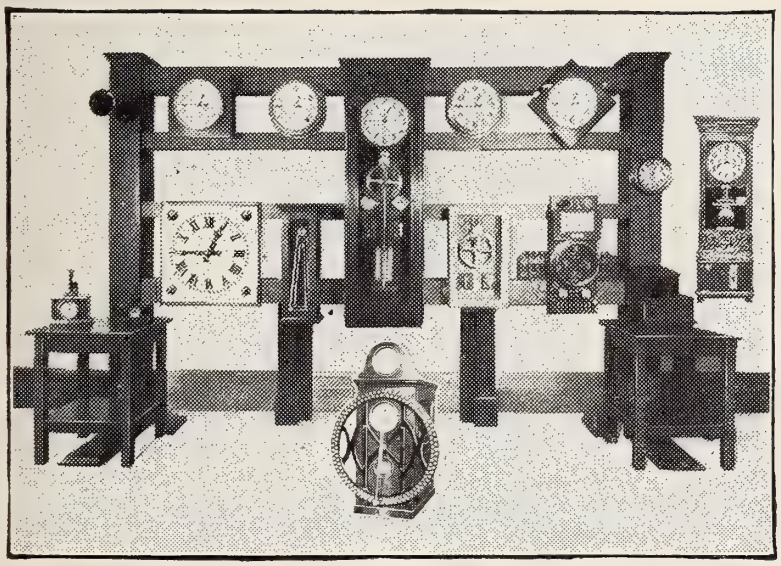
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Steel Shipbuilding Developments in N.S.

Steps Which the Shipping Commission of the Province Have Taken to Encourage the Building of Steel Ships, Together with a Review of the General Shipbuilding Situation in the Province

AN interesting report on shipbuilding in Nova Scotia was tabled, on behalf of the Shipping Commission of the province, in the Legislature recently by Hon. G. H. Murray. The Commission met for organization on May 30 last. From information then in possession of the members, it was seen that the wood shipbuilding industry in the Province of Nova Scotia had developed during the preceding two or three years from a condition of general dullness and neglect to one of much activity and gratifying prosperity. This revival was of course stimulated by war conditions and the abnormal demand for every class of ocean tonnage; and, with true maritime instinct, the Nova Scotia builders were quick to see and seize the apportunity to restore the industry, and at the same time make well-earned profits from their enterprise. Accurate statistics were not available, but a careful estimate of the completed vessels throughout the province in 1916 would bring the number to about sixty, aggregating 12,000 registered tons, and a total cost of $1,200,000.

At the time of the formation of the Commission, reports received from the different shipbuilding districts indicated that the resources of the province, in suitable yards and labor, were pretty fully employed. Subsequent visits by the Commission to several districts in various parts of Nova Scotia confirmed this information, and also afforded a first-hand opportunity for observing the superior skill of the workmen, and for inspecting well-designed vessels of different sizes and in all stages of completion. These tours afforded the Commission a very great pleasure indeed, and it would here desire to record its appreciation of the high value, both in an industrial and patriotic sense, which it attaches to the services of all those who are engaged in building ships. It is estimated that the vessels completed in Nova Scotia in 1917 reached 20,000 registered tons, at a cost of $2,500,000. This quite considerable production was carried out on the resources of the builders themselves, save where, in rare cases, banking accommodation was temporarily required; but, in no instance was it represented to the Commission that any financial assistance was either desired or required from the province. On the date of this report, according to our best information, the complete shipbuilding programme, exclusive of fishing schooners, now being carried out in the Province of Nova Scotia reaches nearly 30,000 tons and is a very creditable showing. It is an Honor Roll worthy of a high place among the records of Canadian Industry and patriotism.

Steel Shipbuilding.

The inquiries and efforts of the Commission have, therefore, been chiefly taken up with steel shipbuilding, and at the outset its members were in general agreement that the policy it should recommend was the establishment of one, large, well-equipped yard in preference to several small ones. The best advice obtainable was also in the same direction, and was, moreover, in full agreement with the Commission's own views that every effort should be made to encourage the participation of established shipbuilding firms of undoubted standing in any project which might be started in the province. This, in due time, led to negotiations with Wm. Beardmore & Company, Limited, of Dalmuir, Scotland, which is one of the largest and most reputable firms on the Clyde. That Company contemplated associating with it in the Nova Scotia enterprise, two other British shipbuilding firms, and one of the largest Canadian corporations. These negotiations were carried on until the end of August, when, on behalf of the syndicate, Mr. T. S. N. Dickson, representing Wm. Beardmore & Company, Ltd., stated to the Commission that the associated companies had arrived at an agreement, if the subsidies to be offered by the province and municipalities were satisfactory, to establish a steel shipbuilding plant in Halifax Harbor at an initial cost of $4,000,000.

Offered a Subsidy.

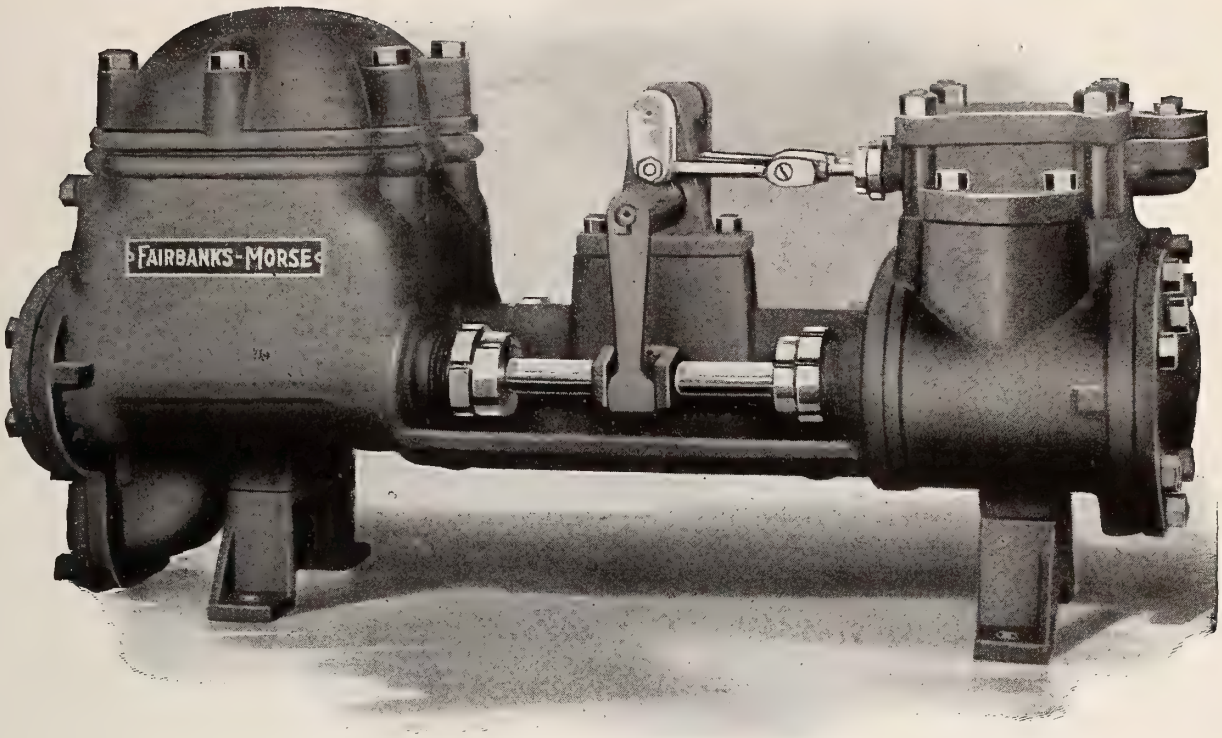
The time had thus arrived for the Commission to decide on its financial policy, and, after full consideration of the measure of assistance which it could recommend for this proposal, or for any other bona fide proposition which might thereafter be made to it for building steel ships in any part of Nova Scotia the Commission, after consultation with the Government, finally embodied its policy in the following telegram which was despatched to Mr. Dickson on 3rd Aug., 1917:

On the understanding that the principals you represent will make an initial investment of $4,000,000 in a steel shipbuilding plant in this Province, the Nova Scotia Shipbuilding Commission will recommend to the Provincial Government that a subsidy at the rate of 10 per cent. of that investment, or $400,000, shall be offered to the Steel Shipbuilding Company which will be organized by your principals, the said subsidy to be paid to the Company on completion of each vessel, at the rate of $5.00 per ton gross register until the total subsidy shall have been exhausted. It will therefore follow that if the initial investment falls short of $4,000,000, the subsidy which this Commission will recommend that the Provincial Government shall then offer will continue to be at the rate of 10 per cent. on that actual investment. The object of this offer on the part of the Commission is to promptly assist the prevailing acute situation in shipping, and it is understood that we will receive a reply from your principals within thirty days and that bona fide operations in the construction of the shipbuilding plant will commence promptly, with a view of producing tonnage within twelve months from this date.

Couldn't Complete Agreement.

The Chairman of the Commission, who was in England on private business, visited the works of Wm. Beardmore & Company, Limited, in the end of August, when he learned that circumstances of pressing importance, then arising from war exigencies, rendered it impossible, for the time being at least, for that firm's British associates to complete the agreement to establish in Nova Scotia. This failure at the last moment was a great disappointment to the Commission, as it was also to Sir William Beardmore who throughout evinced a deep personal interest in the project. His company, however, stands ready to consider any fresh proposals which may hereafter be made to it, provided the restrictions imposed by the British Government on operations or investments outside of the United Kingdom, on the part of British subjects, will not render this impossible.

During all this time numerous inquiries came to the Commission from parties in Canada and the United States, but, as a general thing when traced back, these proposals were not of a character of which the Commission could approve.



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TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
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Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent. **Phone Main 5800**

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works. **D. M. MEDCALF,** Chief Inspector of Steam Boilers.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways. **W. C. McGHIE,** Chairman of Board.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

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THOS. C. IRVING, Gen. Man. Western Canada. Toronto

Even in Nova Scotia itself we did not discover that there was any capital awaiting investment in this industry; and the outsiders who corresponded with us, or who visited Nova Scotia, with but only a few exceptions, were apparently only willing to embark on the enterprise if the province and municipalities furnished the capital.

The fact of the matter was, that although Premier Lloyd George declared that, "in shipping lies victory for the Allies," all the conditions were against laying down a new steel shipyard in Nova Scotia. The Old Country yards were constantly employed with force contracts, and were therefore large importers of plates. The entrance of the United States into the war launched a stupendous shipbuilding programme in that country, and only with great difficulty was the Imperial Munitions Board at Ottawa able to arrange for a limited supply of American plates for the existing Canadian shipyards.

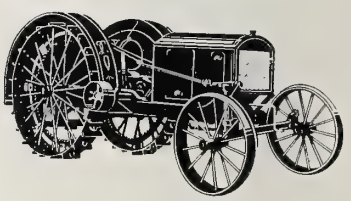
The key to the Canadian situation appeared to the Commission to lie in providing in Canada itself for the rolling of our own ships' plates, and the very first act of the Commission was to make such a representation to the Canadian Prime Minister, to the Dominion Iron & Steel Company, Limited, and to the several Federal members from the Province of Nova Scotia.

The report also had a letter from Mr. Mark Workman, President of the Dominion Steel Corporation, Ltd., in which he stated that "an immediate increase in our steel output is out of the question as it would invoke additional development of iron furnaces and the installation of a larger blooming mill. We are making certain efforts in this direction. It must be borne in mind that the purchase and installation of a modern plate mill would probably require at least eighteen months for completion. The capital expenditure would, in our opinion, be out of all proportion to the tonnage of plates which it would be possible to produce on the equipment, and

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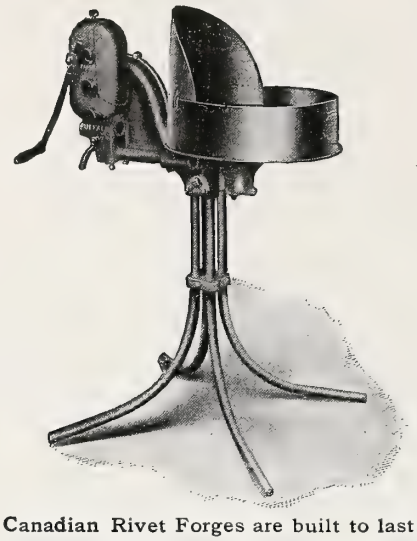
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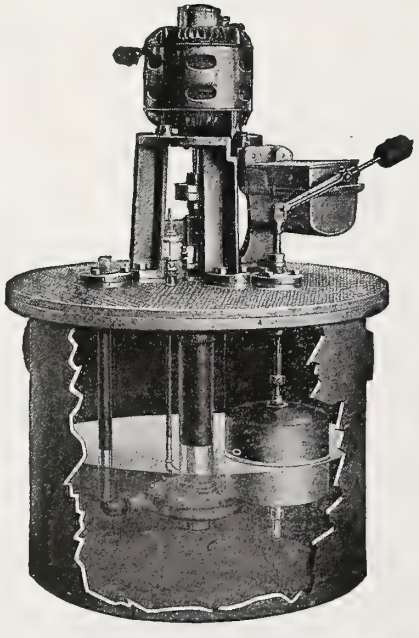

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we could not therefore regard the venture from a purely commercial standpoint."

The Chairman of the Commission (Mr. D. Macgillivray), in reply, said: "I hope the subject is not to be dropped here, however, as the time and occasion would seem opportune for your great corporation to be identified somehow with the inception of a steel shipbuilding industry in Canada.

"Doubtless there were many and weighty reasons," says the report, "why no action was taken at the time, and for the Commission's representation being unavailing, but in the light of events meanwhile, we cannot but think it would have been sound policy then to prepare to roll plates in Canada. The Admiralty Controller has advised: 'It would be of great service if arrangements could be made whereby ships' plates could be rolled in Canada,' and the British Minister of Shipping has expressed himself as wanting to arrange for the building and purchase of further ships in Canada in addition to those now under construction. We think we are warranted in saying that the industry in Canada, prior to the war, was very much neglected, but due credit must be given to the Imperial Munitions Board for its efforts in the past three years.

"As a matter of interest, it may be recorded here that, immediately prior to the operations of the Imperial Munitions Board at Ottawa, the Dominion Government undertook on behalf of the Imperial authorities to build steel trawlers and wooden drifters, the cost approximating $11,000,000. Most of these are now completed. The Imperial Munitions Board has let contracts for 46 wooden and 44 steel ships, the former costing about $24,000,000 and the latter $39,000,000. The wooden ships are 2,500 and 3,200 tons deadweight each, and the steel ships 3,400 to 8,600 tons each. It is expected that all these will be completed this year, when the Board for financial reasons will withdraw from that business. The Dominion Government, on its own account, has undertaken a fresh programme of building steel ships in the various existing yards. This, it is reported will involve an expenditure of $40,000,000, but we are of opinion that this programme is inadequate, inasmuch as no provision is made for starting the industry on the Atlantic Coast. It is there we submit that at all times, particularly while the war lasts, and during the period of demobilization, that the maritime interests of Canada will mainly centre, and we would therefore respectfully urge the claims of Nova Scotia in this regard upon the attention of the Government at Ottawa.

Nova Scotia's Resources.

"Many obvious difficulties will surround a permanent steel shipbuilding industry, but these will be less on the Atlantic than in any other part of Canada. Nova Scotia is rich in raw materials, can easily be equipped to furnish fabricated parts and offers a choice of more than one excellent location for a shipyard. The workmen of the province, who have shown such well tested skill in building wooden ships, can, we are confident, also build ships of steel. This, if proof were needed, has been demonstrated at New Glasgow, where, under the enthusiastic direction of Colonel Thomas Cantley, the Nova Scotia Steel and Coal Company, Limited, has completed and placed in commission one fine vessel, will soon be ready to launch a second and larger one, and a third of the same class is under way. We would observe in conclusion, that, while in our judgment, under present industrial and financial conditions, nothing less than co-operation on the part of the Dominion Government will be adequate to establish a steel shipbuilding industry on a permanent basis in Nova Scotia, yet, the Commission's firm conviction is that the action of the Government of this province in setting on foot this enquiry cannot but result in much good."

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Some Adventures in Foreign Trade

This is One of an Exceedingly Interesting Series of Articles Dealing With the Extension of American Trade in Foreign Lands, a Subject in Which Canadian Manufacturers Should Take a Lively Interest at Present

By CRITTENDEN MARRIOTT

(Reprinted from the "Scientific American")

BEFORE the war American manufacturers, particularly "small" manufacturers, as a whole took little interest in foreign trade. They thought that they did not need it, except perhaps for the semi-occasional dumping of goods which they could not sell at home; and they believed that any systematic attempt to enter it would cost more than they could afford. In short, they felt that the cost was certain and the returns doubtful. It might, they thought, be all right for big manufacturers, who could stand a loss, but not for small men, who would better keep out.

This idea of the real conditions was an error and a serious one. Many a firm which went down to ruin in the bad years that invariably recur from time to time would probably have survived if, in the good years, it had invested some of its profits in developing an export end to its business merely as a matter of insurance. All too often those who had been too busy to think about foreign trade when domestic trade was good and had turned to it only when the home market failed found themselves in the position of a man who had waited till his house was afire before applying for insurance.

That an established foreign end is an exceedingly valuable form of hard-times insurance has been abundantly demonstrated. Moreover, considered merely as such, it is cheap, and if persisted in it will usually turn out to be profitable —an asset and not a liability. Very seldom indeed does calamity overtake business in all quarters of the world at the same time. When business is bad at home it is very likely to be prosperous abroad and vice versa. Manufacturers who have an established foreign trade have found it of tremendous aid in tiding over domestic crises. At such times a very small foreign end, if firmly founded, can be expanded with marvellous rapidity if necessity compels. But, generally, it must be well established beforehand. The initial cost of starting a business abroad in a hurry is sure to be great and likely to be unsatisfactory, and a period of stress is no time to embark on it.

The experience of many American manufacturers who



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had ventured into foreign trade in the years preceding the war perhaps justified the hesitation of others to embark on what was largely an uncharted sea. It was only too easy to find men who had taken "fliers" into the export field and who were dissatisfied with the result; and those who had failed did all the talking, while the ones who had succeeded kept quiet and sold goods. Moreover, few "fliers" succeed in domestic business and almost none in export business, which above all else demands persistency—not necessarily a heavy initial outlay, but a persistent small outlay. In normal times few firms can hope to earn a profit on their foreign business in less than two years. In short, the development of foreign trade is nothing like so costly as it has been supposed to be, but on the other hand it is far slower in growth than most people think. It cannot be worked up in time to meet an emergency.

Number of Exporters Grows.

Since the war began ideas have been changing and the belief that the little fellow cannot afford to embark on foreign trade has been vanishing. To-day a very large proportion of American manufacturers are earnestly seeking to find a way to the pie counter. Their earnestness manifests itself in large and enthusiastic conventions for interchange of information. The Foreign Trade Council, which holds its fourth convention in Cincinnati in April, is a case in point; in three years its membership has grown from a couple of hundred to far more than a thousand, comprising men like the head of the steel trust, and others in the Potash and Perlmutter class.

Most, or at least very many, of the small American manufacturers who had an export end to their business when the war began had it "wished on" them. Some foreigner, somewhere, had somehow become interested in their goods and had sent them an order, from which their trade had grown almost without effort on their part. Hundreds of American manufacturers, however, had failed to take advantage of such an opening. Some had even failed or refused to fill orders coming in this way, either because they knew nothing of the business standing of the orderer, or because they were unwilling to take the trouble to ascertain the shipping and tariff rules of his country, or because the domestic market happened to be good and their shops busy. An instance of how these chances are let slip even to-day is pertinent.

How Not to Export.

Everyone knows, or should know, that Russia is on the verge of enormous business expansion, once her governmental chaos is resolved into order. The war has waked the nation up and its wants are increasing daily, while the suppression of vodka has greatly increased its means of gratifying them. New enterprises have been started everywhere. Several months ago a Russian, living at some place west of the Urals, wrote to an American export agency that he wanted to start a candy-making business and would like to be informed as to the prices of American candy-making machinery. He sent thoroughly reliable bank references as to his financial standing. The agency referred the letter to half a dozen American manufacturers of candy-machinery, one and all of whom replied that they could not quote prices without further information. "Ask your correspondent what size business he contemplates and what type of machinery he wants and what sort of sugar he is going to use and generally all about it and we'll be glad to let him know what the machinery will cost," they wrote, substantially. Here was a man who had plenty of money, who knew little about candy-

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making, but who saw a field for it (sweets are always in demand when alcohol is banished), and who wanted to get some idea of the cost of starting a business. And the American firms snubbed him! His letter took more than two months to come and the American answers will probably take at least two months to go; and they will not give him a particle of information when they do reach him. Before he can write again—if he has any desire to write again—the war may be over and some enterprising German or Britisher may and very likely will have got the foundation for a trade that is likely to become very important.

Facts That Read Like Fiction.

Far different was the experience of a Texas motor truck manufacturer—perhaps because motor trucks are faster than molasses or any other sort of candy. This particular manufacturer happened to be in London two or three years before the war. An acquaintance mentioned to him that his firm wanted five motor trucks to send to their branch office in Calcutta and could not get them anything like so quickly as they desired, the British shops all being loaded with orders beyond their capacity. The Texas man promptly offered to furnish the trucks. The Englishman laughed. "Texas!" he jibed. "Send motor trucks from Texas! That's jolly good, don't you know! Why, my dear fellow, you couldn't meet the price or deliver in our time." The Texan was hipped. "Couldn't we?" he answered. "I'll show you." He got the contract and rushed away to the cable office, hoping to be able to ship by a steamer which he knew would soon leave Galveston. The cable was out of order, and the company was accepting all messages subject to long delay. The Texan filed a message and then hurried across the street and sent a duplicate message by wireless. It beat the cable by two days. The men at the Texas end were also live wires; they got those five trucks to Galveston in two days—in time to catch the ship—and got them to India about a month before the earliest date at which any British firm had been willing to promise them delivered in London. From that starting point the Texan has sold over fifty motor trucks in India.

But he did not stop there. The sale of the five trucks only whetted his appetite. While he was waiting for his trucks to reach London and to make sure that they went on without delay he scurried about and sold two or three more in England. When he got back home he began to send out catalogues. For two years the business limped along, but showed no real profit, and he was about to give it up when he learned of a foreign trade expert, an Italian, who was seeking a post. He engaged him and put him in charge of his foreign business. To-day this Texas firm ships motor trucks to all parts of the world—to 34 different countries—and does a foreign business of half a million dollars a year at an annual cost of about $25,000. The initial expenditure in working up the business was less than $5,000.

Pianos in the Andes.

Another firm accomplished somewhat similar results by a somewhat different method. This firm sells pianos and stands exceptionally high in the domestic trade. Some years ago one of the younger members of the firm, just out of college, took a pleasure trip to Panama and Colombia. While down there he met some charming people who lived in Lima. The head of the family, who kept a music store, became interested in American pianos and asked for a catalogue. The piano man gave it to him and forgot the whole proceeding.

Many months afterwards he received an order for several costly instruments—drafts to follow. The older members of the

John V. Gray Construction Co., Ltd.

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Repeat Contracts, 1917

Swift Canadian Co., Ltd., Toronto
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Eliminate the cost of forms. Save studs, stiffening channels and wiring. Save floor space and dead weight. Prevent makeshifts, inconveniences and delays. By constructing your new building, whether large or small, with HY-RIB, you will lower its cost considerably and at the same time have a permanent, fireproof and more valuable building.

In roofs, floors, walls, sidings, partitions, ceilings and furring — in arched floors, culverts, conduits, sewers, silos and tanks—in construction work of all kinds — HY-RIB reduces building costs by saving materials, labor and time.

HY-RIB is a steel mesh stiffened by rigid, deep ribs, manufactured from a single sheet of steel. Eliminates forms and all special equipment. Furnished straight or curved, cut to desired length at the factory. Its use is decidedly simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied.

Let us show you conclusively how you can bring down building costs with HY-RIB. Send to-day for valuable HY-RIB hand book, containing specifications, tables, illustrations, etc., free.

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Fire Clay Stove and Range Bricks, Locomotive Arch Blocks

And All Shapes in Fire Clay

FACTORIES AT

ST. JOHNS, P.Q., and NEW GLASGOW, N.S.

firm looked Lima up on the map and decided that the order was a joke, that nobody there could afford to buy such pianos, even if they ever did arrive. Only when the draft came did they conclude that whatever else the order was, it was not a joke.

Unfortunately the pianos ordered were no longer in stock. Here was a chance to write a lot of letters, like the candy people. But the young partner was of another type. He was willing to take a chance. He sent instruments as nearly as possible like those that had been ordered and wrote to the Lima man that if they were not satisfactory they might be returned at the firm's expense. In reply he received a warm letter of appreciation and an order and draft for more pianos. Since then he has done a big business with the west coast of South America. Moreover, it will be difficult for any one else to get the trade away from him; the Lima man has sung his praises for square dealing all along the coast too well.

Another case of having business thrust upon him was that of a manufacturer who, many years ago, toured down the east coast of South America on a pleasure trip. This man, who makes saddles and harnesses, lives in Kentucky, where they know how to fit out a horse properly. His saddles were beauties. In Rio Janeiro he met a resident who was also interested in saddlery and who insisted on placing an order with him. Kentucky tried to sidestep, knowing that his saddles differed from those in vogue in Brazil and fearing that they would not sell there. But his Rio friend insisted. So when he got home he shipped the saddles, after making some superficial changes that made them a less marked contrast to the Brazilian article. Whether for this reason or for some other the saddles sold well, and a profitable business was built up, not alone in saddles but in all grades of horse vestiture. To-day Kentucky saddles may be found all over the high grassy plains of Minas Geraes and other great stock-raising states of Brazil.

How to Answer Inquiries.

Years ago a manufacturer of coal-mining machinery received a letter from a man in Siberia who wanted to know about his line of goods. The writer had seen the firm's advertisement in a trade journal. The American manufacturer was interested in the inquiry chiefly because of the novelty of its source. But he had heard tales about the coal deposits in Russia and China and Korea and he decided that there might be something in the thing. He was a thorough-going fellow and so he answered in full, not merely sending catalogues and printed matter, but writing a ten-page letter, going into minute details, such as what the machinery weighed, what foundations it must have to rest on, how big the shipping boxes that would carry the parts were and what they would weigh, what the freight would cost, where and how extra parts could be obtained most quickly, and so on.

He sent the letter. About the time it should have reached its destination, the Russo-Japanese war threw Asia into turmoil and long before it was over he had forgotten the whole matter. But four years later he received an order with draft for a very complete line of his machinery. Since then the business has had ups and downs, owing chiefly to the political situation and the attempts of the Japanese to keep everything in that part of the world for themselves. But it has never failed to show a yearly profit—in the aggregate a very large profit.

TRACTOR DESIGNER OPEN FOR ENGAGEMENT.

Experienced Tractor Engineer and Designer is open for immediate engagement. Thirteen years' engineering practice and technical education. Knowledge of requirements for factory efficiency and production. Man of Ideas. Design for Sale.—BOX 771.

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Windsor, Ont.

Head Office :
701 CONFEDERATION LIFE BLDG.
Toronto, Ont.

List of Work Done During 1917

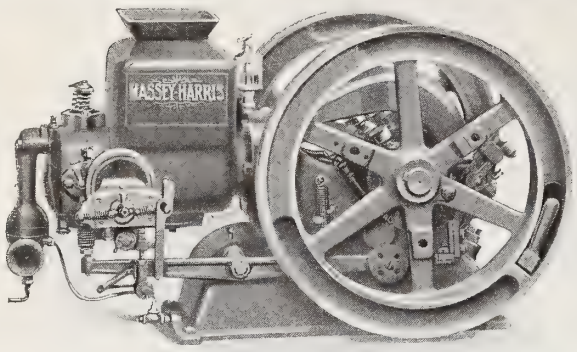
Building	*Owner*	*Location*	*Approx. Value*
Packing Case Building	Peters Cartridge Co.	Kings Mills, Ohio	$170,000.00
Shooting Gallery	" " "	" " "	45,000.00
Coal Conveyor	" " "	" " "	12,000.00
Extensions to Plant	Ford Motor Co.	Ford, Ont.	240,000.00
Reinforced Concrete Bridge	Canadian Pacific Railway	North Toronto	175,000.00
Freight Shed	" " "	Lambton, Ont.	11,000.00
Additions to Factory	Nicholson File Co.	Port Hope, Ont.	58,000.00
Power Development Work	Hydro-Electric Power Com.	Big Chute, Severn R.	21,000.00
Extensions to Transformer House, Power Lines, etc.	" " " "	Niagara Falls, Ont.	83,000.00
Addition to Residence	G. M. McGregor	Windsor, Ont.	14,000.00
Addition to Factory	Canadian Lamp & Stamping Co.	Ford, Ont.	21,000.00
Addition to Factory	Kelsey Wheel Co.	Windsor, Ont.	2,000.00
Completion of Collegiate Institute Building	Board of Education	" "	75,000.00
Alterations in Plant	Harris Abattoir Co.	West Toronto	3,500.00
Extensions to Plant	Dominion Forge & Stamping Co.	Ford, Ont.	90,000.00
Alterations to Plant	Canadian Salt Co.	Windsor, Ont.	10,000.00
		Total	$1,030,500.00

Of this total $660,000.00 worth of work was done on a percentage basis.

Every one of the above contracts was obtained, because we had previously given satisfaction on other contracts for the same owners.

We please others. We can please you if given an opportunity.

WELLS AND GRAY LIMITED



A Reliable and Efficient Gasoline Engine

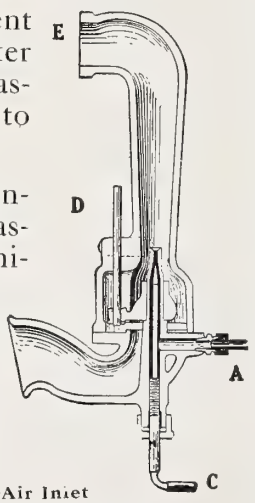
POWER when you want it and no expense when not working is what makes the Gasoline Engine popular as a source of power.

The Massey-Harris Engines are famous for efficiency and economy of operation, and are made in a good range of sizes (2 to 15 h.p.), stationary or portable, hopper jacket or tank, battery or magneto ignition.

THE SIMPLE CARBURETOR

This is the most efficient and economical Mixer in its consumption of gasoline that it is possible to make.

The incoming air entirely surrounds the Gasoline Jet, ensuring a uniform mixture, and, in connection with the Air Throttle, making the Engine exceptionally easy to start, even in cold weather.



A—Gasoline Inlet B—Air Inlet
C—Needle Valve D—Air Throttle
E—Passage to Combustion Chamber.

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AGENCIES EVERYWHERE

ALBERTA'S COAL.

The Increasing Importance of this Province as a Coal Producer is Attracting Attention.

The abnormally cold weather during the winter, and the difficulties experienced in securing fuel, has intensified interest in the coal resources of the Dominion. Many people, for the first time, are searching statistics to ascertain, as exactly as possible, the extent, value and location of the coal resources of the nine federated provinces.

For many years Nova Scotia has been the premier coal-producing province, and until the last few years British Columbia was second in the list. But railway construction has rendered available a considerable portion of the vast extent of the coal resources of Alberta, and that province on the eastern slope of the Rockies has ousted the Pacific coast province from the second position in Canada. The greater part of this recent expansion in production of coal in Alberta has been brought about by the building of lines of the Canadian Northern Railway. The production in tons:

	Nova Scotia.	Alberta.	British Columbia.
1909	5,652,089	1,994,741	2,606,127
1916	6,894,728	4,563,020	2,582,727

A study of the tonnage carried by the Canadian Northern during the last few years, shows that its development as a coal carrier has been almost entirely due to closer settlement in the Prairie provinces, and to the expansion of the coal mines along its lines in Alberta.

In 1910, the Canadian Northern carried in coal only 282,718, and in 1912 804,803 tons. By 1914 the total handlings had doubled, the figures being 1,724,337, and for its annual report as of June 30, 1917, it is understood the company will show a total production of nearly two million tons of coal handled over its lines.

The important position Alberta has occupied in the building up of this tonnage may be gathered from the fact that in 1910 the movement over its lines in that province was but 81,146 tons. In 1911 it grew to 204,730 tons, in 1914 to 358,739, in 1915 to 476,860, in 1916 to 706,414, and in 1917—eight months only of the year being shown—the figures had already attained to 691,261 tons.

CANADIAN STEEL CASEMENTS.

An impressive piece of work is the new catalogue of Canadian Steel Casements just sent out by the Trussed Concrete Steel Co., of Walkerville. Measuring 9½x12½ inches, containing 32 sheets of heavy coated paper on which the illustrations stand out with great distinctness and bound in loose leaf style so that sheets may be removed for transferring illustrations to architects' drawings, it is alike a handsome, comprehensive and serviceable production.

"Windows constructed of what are now generally understood in the trade as casement sections (distinct from factory type sash sections) are becoming more popular every day for use in the finer type of buildings, such as town halls, court houses, hospitals, public libraries, banks, office buildings, apartment houses, schools, churches etc., as well as large private residences," says the Company in the introduction. "While we do not at any time attempt to compete with the cost of wood sash, we are confident that the slight extra cost involved is fully justified by the merits of our steel casement sash over the old style wood sliding sash with which in addition to all the other defects, not more than 50 per cent of ventilation is obtainable."

The catalogue begins with specifications, then supplies illustrations, and concludes with notes on the erection and fixing of the hardware.

Announcement

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COPPER

HOT AND COLD ROLLED

SHEETS——ROLLS
STRIPS——PLATES
ANODES
BUS BAR
RODS

Made in any width up to 66 inches, in all tempers for roofing, blanking, deep drawing, spinning. Accurate to gauge and highly finished.

PROMPT DELIVERIES

Brown's Copper & Brass Rolling Mills, Limited

NEW TORONTO (Near Toronto)



Organization Depends on You

Your filing clerk is not responsible for the way your filing system works; it's not her fault if it's *fundamentally* wrong. And you certainly can't blame her if she holds you up for that "wanted-in-a-hurry" paper—to close some important point in a discussion—to get some needed information.

You're responsible for the proper organization of your office, and everything that's in it—including your filing system.

This is the case in your factory; every operation is planned for your men; shop practices are standardized; all the thinking is done in advance—to save time, delays and clogged wheels.

The only difference between factory and office routine is one of function—*for efficiency both depend on organization*.

So your clerks are only responsible for carrying out the details of filing. And if your filing system isn't fundamentally right—in other words if it won't yield up the paper you want when you want it—is it really fair to put the blame on your filing clerk?

The "Office Specialty" Direct Name System of filing correspondence is a steel-trap, error-proof system of filing. Your filing clerk can't go wrong. Everything's worked out to act automatically—it's organization based on simple, fundamental principles.

Hundreds of business men in every kind of business have found this system the end to their "filing-and-finding-of papers" problems. The same benefit it has brought to them is offered to you—and backed by time, labor and money saving proof.

If this "getting-papers-when-you-want-them" question is bothering you, get in touch to-day with our nearest Filing Equipment Store and let one of our service men demonstrate its particular benefits to you. Or if you want a little more information about it before doing anything write to the nearest store for descriptive folder No. 1862.

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FILING SYSTEMS

903

The Problem of Interest on Investment

For Statistical Purposes, Interest on Investment is Correct, but Such an Item Should Never be Carried Into the Inventory and Balance Sheet Unless a Reserve is Set Up

By P. E. KUNTZ

(Reprinted from "Manufacturers' News")

ABOUT two years ago interest on investment included in manufacturing cost was given considerable attention by the Detroit Credit Men's Association and recently discussed somewhat in committee meetings of the Illinois Manufacturers' Costs Association.

The cause of this interest is because the Government has permitted manufacturers in submitting their annual statements to take into account a deduction for depreciation, which formerly but a few manufacturers considered in figuring their costs.

Little was known of depreciation and obsolescence on machinery, tools, equipment and buildings, until 1909, when the United States Government imposed on corporations what was known as the corporation tax on profits in excess of $5,000 and compelled manufacturers to submit a truthful statement of their profits. In one sense this has proved as beneficial to the manufacturers as it has for the Government, and just as the present income tax law will prove beneficial to the small grocers and shopkeepers who have heretofore kept no books of account.

Various allowances were made, one of which was that depreciation should be written off on fixed assets. Very few concerns paid any attention whatsoever to such an important item as depreciation, and consequently never wrote off one dollar. Mr. Hurley, formerly chairman of the Federal Trade Commission, said two years ago but ten per cent. of the manufacturers in the country recognized depreciation. Quite naturally, the manufacturers were shocked when informed that their equipment and plants were losing value each year. They could not understand it. It had never been brought to their attention before that their equipment was on the march to the scrap pile because of wear and tear and the obsolescence caused by the constant improvements being made on machinery.

Manufacturers Have Awakened.

The manufacturers have now awakened. As a result they have paid closer attention to their financial statements, and now every item of their accounts is under their constant surveillance.

There has been great reluctance on their part to charge off depreciation and set aside reserves to provide for the inevitable wear and tear which takes place on fixed properties, whether used or not. In some instances they have found that if they do not charge off depreciation they are earning large profits and have to pay a proportionately larger tax. They therefore prefer to write off depreciation and reduce their taxes. Many manufacturers, nevertheless, inwardly rebel and maintain that their properties are just as valuable as the day they purchased them and much of it may have outlived its usefulness. Their contentions may be true, but they have not distinguished between the purchase price and the true present value of their properties—what it really would be worth if they had to dispose of it.

With the lesson of writing off depreciation learned, they began looking about for some means of increasing their cost figures to maintain their former rate of profit. In their haste and confusion they did not distinguish at inventory time between pricing goods for inventory purposes and pricing goods for selling purposes. Their position is awkward. They are astride a fence with their legs crossed. As a result many business men have gone from one extreme to another, and are now loading up their costs with fictitious expense and carrying it into their inventories as an asset and paying taxes on it. Many continue to do it by book-keeping entries, but mere book-keeping entries, as we know, representing no sales or transfers of values do not make profits. Profits are not made in that manner. They are indulging in what might be called high finance, but unfortunately they are deceiving no one but themselves, because as a parallel to offset depreciation many manufacturers have pounced on interest on investment; but they have not corrected the error of understatement by adopting that of overstatement, so far as ascertaining the correct cost of manufactured goods is concerned.

Question of Interest Rate.

At the close of a business year a business man knows what his profits are and what they ought to be. He knows without figuring at great length whether or not his business earned a normal rate of interest. If his business has not earned a normal rate, he knows he would do better not to engage in business. His remedy, however, lies in fixing the selling price of his goods. If he does not figure interest on investment into the selling price of his goods, he includes it arbitrarily. At any rate it gets in, but it is safer and better to figure it in than it is to include it arbitrarily. He must, however, be cautious in pricing his inventory or he will deceive himself. Do not misunderstand me. I maintain that for statistical purposes—fixing of selling prices—interest on investment is correct, but such an item should never be carried into the inventory and balance sheet, unless a reserve is set up, since it results in what is known as paper profits, internal profits, fictitious profits, fanciful profits, visionary profits, imaginary profits, unrealized profits, and a host of similar accounting terms having all the same meaning and effect. Any such book-keeping entries made in the general financial books without setting up a liability account, a reserve account, merely inflates the inventory just so much and results in false accounting.

The question of what rate of interest to use has been a stumbling block. Its exponents say a normal rate, but a normal rate is very indefinite—it may be 3 per cent. or 6 per cent. or more. What would be a normal rate for a manufacturer of a patented specialty or a mining company might

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Undivided Profits - -	1,664,893
Total Assets - - -	$403,980,236

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IMPERIAL BANK OF CANADA

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COLLECTIONS made at all points in Canada and in foreign centres.

DRAFTS—Money Orders and Letters of Credit issued, available throughout the world.

EXCHANGE—Domestic and Foreign Exchange bought and sold.

SAVINGS received at all Branches—interest credited half yearly at current rate.

Accounts of Merchants and Manufacturers solicited.

HEAD OFFICE - TORONTO

be an abnormal rate for a trading concern, such as a wholesale grocer or a lumber dealer.

If business men should contend, under existing trying conditions, that 6 per cent. should be the normal rate of return for money invested in business, they trap themselves; for by so doing they might commit themselves to the fact that business is entitled to but 6 per cent. and any return in excess should rightfully belong to the government or to the public. But where is there a business man who should be satisfied with 6 per cent. and all the risks involved to earn 6 per cent?

This brings us face to face with another condition: If one must engage in business to earn 6 per cent., involving all the labor, worry, risks, uncertainties and sleepless nights, why should men put their money in business when they can invest 6 per cent. in bonds and remain at home and have only the trouble of clipping the coupons?

The Normal Rate.

In economics the business man is known as the *entrepreneur*, by which is meant the one who assumes the risk, and any rate earned in excess of the "normal rate" is considered profit by the economist, to which the business man is justly entitled. From what I have said you can judge for yourselves how good a defense the business man and the economist make since they are unable in the first place to establish a rate of interest that will be recognized as normal, and so far as I am able to learn not one class of industry has yet been willing to put itself on record as to what the "normal rate" should be.

There is a wide difference between the viewpoints of the economist, who deals with a science, which, as we know, is theory, and those of the accountant, who deals with art, which is practical. The accountant has actual figures and concrete conditions to interpret as he finds them in their reality. His duty primarily is to present a conservative and truthful statement of a concern's financial condition, and he therefore must squeeze out all the water and not pour more in. If the accountant could make negotiable dollars, credit, the necessities of life or wealth (the economist's term) out of an economist's book-keeping entries, we would have more economists and fewer accountants. Just now at this moment the various governments engaged in war could well use a few economists to collect increased taxes.

An example of how the matter works out in actual practice will not be amiss. I shall therefore assume that a manufacturer in one instance owns his $200,000 building, and in the other rents a $200,000 building. What leads the manufacturer to own his building? He inwardly says it is a permanent business home and reduces his rent, as he claims it, and some even go so far as to advertise the fact that since they own their own buildings they pay no rent. Those better informed know that in lieu of rent the business man owning his building must bear all depreciation and pay all upkeep, repairs, insurance, taxes, assessments, etc., but not the 4 per cent. or any other rate that he would have to pay a landlord. He hopes, however, to recover any difference he would have to pay a landlord by fixing the selling price of his goods. He must, if he is to be fair with himself. If he omits it, he is giving away the use of his capital.

A Fictitious Profit.

What will the result be if the manufacturer owning his building includes 4 per cent. interest on investment in the cost of manufactured goods on hand that remain unsold? His profit and income account shows a fictitious profit of $8,000, and his inventory is inflated by a like amount—just so much water. To make matters worse, by such procedure he pays the government a tax on the fictitious profit (water) on the

goods that remain unsold, and declares a dividend out of capital for the remainder, and he further deprives himself of just so much working capital, not for one year but for as many years as he continues the practice; because he pays out such "profit" in advance of its being realized. Can you imagine a worse condition than this? Profits can not lawfully be paid out of capital, but only out of earned surplus, and any such unrealized profits paid out of capital must be returned to the business by the directors who are accountable for their acts.

ASBESTOS CORPORATION.

Profits for 1917 Were Five Per Cent. Greater Than in 1916.

Profits of the Asbestos Corporation of Canada, including income from investments of $56,527, amounted to $563,069. This was $27,000 or 5 per cent. greater than the profits of 1916. After allowing for various charges, including renewals and betterments, bond interest and dividends of $160,000, there was a surplus of $93,789 which, added to the previous surplus, brought the total surplus to $593,892. The company continues to improve its financial position. Adding investments in war bonds and the company's own bonds to ordinary working assets, the total at the end of 1917 was $1,692,347, against current liabilities of only $143,496. The surplus of working capital at $1,548,851 compares with $1,459,966 at the end of 1916.

BRANDRAM-HENDERSON, LIMITED.

Company Experienced One of Its Best Years in 1917 and Reported Large Profits.

At the annual meeting of Brandram-Henderson, Limited, which was held in Halifax on February 20, total manufacturing and trading net profits were reported of $221,429. At the end of 1916 the balance of profits carried forward amounted to $349,464, and this added to the figures given above, made a total of $570,894.02 to the credit of Profit and Loss account. The deductions from this latter amount as per the statement, were as follows: Bond interest paid and accrued, $22,528.93; dividend on preferred stock paid and accrued, $35,000; reserve for depreciation, $7,500; reserve for special depreciation, $10,000; sinking fund for redemption of bonds, $15,600; dividend on common stock, $29,100; war tax (including part of previous year unassessed), $31,917.67; patriotic donations, $7,062.50; making total disbursements of $158,709.10, and leaving a balance carried forward of $412,184.92.

The directors recommended, and the shareholder's meeting assented to a dividend of 4 per cent. on the common stock, payable 1 per cent. quarterly on March 1st, June 1st, September 3rd and November 30th; to shareholders of record one month prior to dates of quarterly payments.

An interesting feature of the Directors' report was with reference to expansion in the company's operations. It stated that in order to satisfactorily develop British Columbia business, it was found desirable to establish a depot in Vancouver; and owing to the strong sentiment in favor of provincial organization, a separate charter had been secured to do business in the name of Brandram-Henderson, of B.C., Limited. Brandram-Henderson, Limited, have thus completed sales arrangements for the entire Dominion, with distributing points at Halifax, St. John, Montreal, Toronto, Winnipeg, Edmonton, Calgary, and Vancouver. Mr. Henderson made a reference to the establishment of a Marine Paint Specialties

THE ROYAL BANK OF CANADA

Incorporated 1869

Capital Authorized.....$25,000,000
Capital Paid Up $12,911,700
Reserve & Undivided Profits..$14,324,000
Total Assets.....$295,000,000

HEAD OFFICE, MONTREAL

BOARD OF DIRECTORS

Sir Herbert S. Holt, President E. L. Pease, Vice-President and Man. Director
E. F. B. Johnston, K.C., 2nd Vice-President

Jas. Redmond	A. J. Brown, K.C.	G. H. Duggan
G. R. Crowe	W. J. Sheppard	C. C. Blackadar
D. K. Elliott	C. S. Wilcox	John T. Ross
Hon. W. H. Thorne	A. E. Dyment	R. MacD. Paterson
Hugh Paton	C. E. Neill	G. G. Stuart, K.C.
Wm. Robertson	Sir Mortimer B. Davis	

OFFICERS

E. L. Pease, Managing Director
C. E. Neill, General Manager F. J. Sherman, Asst. Gen. Manager
W. B. Torrance, Superintendent of Branches

Branches in every Province of the Dominion of Canada and in Newfoundland; in Havana and throughout Cuba, Porto Rico, Dominican Republic, Costa Rica and Venezuela; Antigua, St. John's; Bahamas, Nassau; Barbados, Bridgetown; Dominica, Roseau; Grenada, St. George's; Jamaica, Kingston; St. Kitts, Basseterre; Trinidad, Port of Spain, San Fernando; British Guiana, Georgetown, New Amsterdam; British Honduras, Belize.

LONDON, ENG., OFFICE—Princes St., E.C.

NEW YORK AGENCY—Corner William and Cedar Sts.

Savings Department at All Branches

THE CANADIAN BANK OF COMMERCE

SIR EDMUND WALKER, C.V.O., LL.D., D.C.L., President

SIR JOHN AIRD, General Manager
H. V. F. JONES, Ass't General Manager

CAPITAL PAID-UP, $15,000,000
RESERVE FUND, $13,500,000

Extension of Canadian Trade

The Bank will make enquiries into the possibilities and requirements of markets abroad for exporters or importers who desire to extend their trade with British colonies or possessions. Owing to the large number of its correspondents and agents it has unusual facilities for this work.

S 57

branch, which is under its own manager. This was decided upon and effected in June last, in order to deal more effectively with the greatly increasing demands for technical paints and sundries for shipbuilding purposes.

BANK MAP OF ONTARIO AND QUEBEC.

Useful Publication Has Been Issued by Natural Resources Intelligence Branch, Department of Interior.

From the standpoint of area and financial resources, the older provinces of Ontario and Quebec naturally assume the premier position in the commercial life of Canada. It is incumbent upon them to supply the 'sinews of war'—or in other words, to meet the financial needs of the smaller provinces. Therefore, the great monetary institutions have extended their ramifications throughout the length and breadth of the Dominion, until the smallest towns now enjoy the advantage of possessing one or more branch banks within their limits. But while the larger banks have gone far afield in this regard, it is but natural that the great proportion of their branches should be located within the confines of the two larger provinces.

The importance of supplying some accurate data to the public as to the extent and location of the branches of the chartered banks, has been recognized by the Government, and an official publication known as the Bank Map of Ontario and Quebec has been issued by the Natural Resources Intelligence Branch of the Department of the Interior at Ottawa. A new edition—the third—of this useful map will soon be available to the public.

The map itself is on a scale of 25 miles to the inch and embodies several important features. Every city or town in which a chartered bank branch is located is indicated by a circle. If more than one branch exists in said location, the exact number is shown in the circle. But what is almost of more importance, is the railway feature of this map, under which all the railways, great and small, operating in the two provinces are indicated by a color scheme. The four large systems—the Canadian Pacific, Grand Trunk, Canadian Northern, and Canadian Government railways, are represented by a different colored line, while the smaller roads are grouped under one color. The merchant or fish dealer of the Maritime provinces, as well as the farmer of Western Canada, can each determine at a glance the shortest and most convenient route by which manufactured goods may be shipped to him, and at the same time ascertain the most feasible method of routing his own products to the markets of Central Canada.

This map may be obtained free, on application to F. C. C. Lynch, Superintendent of Natural Resources Intelligence Branch, Department of the Interior, Ottawa.

TICONDEROGA PULP AND PAPER.

Subsidiary of the Riordon Pulp and Paper Earned Huge Profits During 1917.

The acquisition of a controlling interest in the Ticonderoga Pulp & Paper Co. by the Riordon Pulp & Paper Co., has proved of considerable importance to the latter company. In 1916, the year in which control was obtained, a surplus balance of $455,429 on $360,000 common stock was earned. That performance was considerably eclipsed by the 1917 showing. After paying $23,543 in respect to taxes due for 1915, disbursing a 20 per cent. dividend on the common

UNION BANK
OF CANADA

Established 1865 Head Office, Winnipeg

Paid-up Capital.....$5,000,000 Reserve Fund.....$3,400,000
Total Assets over.....$120,000,000

FACILITIES FOR HOME AND FOREIGN TRADE

With over 305 Branches in Canada, from Halifax to Prince Rupert, the Union Bank of Canada offers excellent facilities for the transaction of every phase of modern banking business.

In connection with export trade, attention is particularly drawn to the advantages offered by the Foreign Exchange Department of our London (England), New York and Montreal Offices, and Manufacturers and Exporters are invited to avail themselves of the Commercial Information Bureaus established at these Branches.

NEW YORK AGENCY: 49 WALL ST., NEW YORK CITY---GEO. WILSON, Agent.

shares, or $73,600, and a small sum—$787—in dividends on preferred stock to the date of the stock's retirement, $478,181 was added to surplus, or an amount equivalent to $130 a share.

Deductions from the total operating profit of $881,426 for the year included $147,279 for depreciation, $39,319 for bond interest, $23,716 interest on loans, and $95,000 in bonuses to directors and employees. That left $576,112 as the net profit for the year, prior to the tax adjustment for 1916, and the tax that must subsequently be provided for in respect to 1917.

Surplus account as a result of the large carry forward for the year was brought up to $1,480,616, or four times the outstanding capital stock.

The balance sheet reflects the prosperity of the company in a number of ways. The balance of preferred stock outstanding has been retired and accrued dividends all paid off. Fund debt has been reduced slightly. On the other side of the sheet is a large increase in investments, which are stated to include stock of the Riordon Company, Liberty bonds, etc. These investments added to the company's working assets make a total of $1,619,527, against which there are current liabilities of $686,203.

CANADA CEMENT.

Net Earnings for 1917 Were Very Considerably in Excess of Those for the Previous Year.

Net earnings of the Canada Cement Co. for 1917, after allowing for depreciation and special equipment written off, were $2,861,246, an increase of $642,398 over 1916, which was the previous best year in the company's history. After meeting fixed charges and paying the regular dividend on the preferred stock, the balance of $1,694,181 represented earnings of 12.6 per cent. on the common stock, as compared with $1,040,086, or 7.7 per cent. in 1916.

The profit and loss figures for the year include two special appropriations for reserves, one of $350,000 for contingent reserve, and one of $50,000 for repairs and renewals. In the balance sheet the item contingent reserve, amounting in all to $750,000, carries an explanatory remark stating that a portion of this reserve is available for Government taxes. It may be assumed then that the $350,000 reserved out of the year's profits for contingent account is an offset against the liability for war taxes in respect to the year's earnings.

After all deductions, including the $400,000 appropriated for reserve, the company carried forward $484,181 to surplus, bringing that account up to $2,576,999.

Current liabilities, which expanded sharply when the company took on munition work, were reduced in the year from $2,674,630 to $634,398; concurrently current assets, including war loan investments, increased about $400,000 to $5,291,985. The net working capital, therefore, rose to $4,667,587, against $2,221,625 the previous year.

Senator Edwards, in presenting the report of the directors, notes among other things that earnings from the cement business proper were "more than sufficient to take care of all fixed charges, preferred dividends and ordinary dividends chargeable to the year's profit." The intention of the remark is evidently to emphasize previous statements of officers of the company that the common stock dividend started in 1916, would not be dependent on special earnings out of the company's munition undertaking.

As to other features of the year's results the President remarks:

"The demand for your company's product during the past year was approximately the same as the two preceding years, notwithstanding the fact that work on many large and

Established in 1836. Incorporated by Royal Charter in 1840.

THE BANK OF BRITISH NORTH AMERICA

Paid-up Capital - $4,866,666
Reserve Funds - $3,017,333

Statement to the Dominion Government (Condensed), 31st January, 1918

LIABILITIES TO THE PUBLIC.

Notes in Circulation	$ 5,312,540
Deposits	56,732,358
Due to other Banks	884,788
Bills Payable (Acceptances by L/O)	1,366,843
Acceptances under Letters of Credit (as per contra)	1,113,404
	$65,409,933

ASSETS.

Cash on Hand and in Banks	$13,156,263
Deposit with Government o/a Note Circulation	245,822
Deposits in Central Gold Reserve	1,970,000
Government, Municipal and other Securities	12,591,380
Call and Short Loans	7,521,447
Current Loans and Discounts and other Assets	36,410,840
Liabilities of Customers under Letters of Credit (as per contra)	1,113,404
Bank Premises	2,409,292
	$75,418,448

Riordon Pulp & Paper Company, Limited
Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS

CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72-INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

The Merchants Bank of Canada

Head Office - MONTREAL

Paid-Up Capital - -	$7,000,000
Reserve Funds - -	7,421,292
Total Deposits - -	92,102,072
Total Assets - - -	121,130,558

BOARD OF DIRECTORS

SIR H. MONTAGU ALLAN, C.V.O., President
K. W. BLACKWELL, Vice-President

THOS. LONG F. HOWARD WILSON A. B. EVANS
F. ORR LEWIS A. J. DAWES E. F. HEBDEN
ANDREW A. ALLAN F. ROBERTSON THOS. AHEARN
C. C. BALLANTYNE G. L. CAINS LT.-COL. J. R. MOODIE

E. F. HEBDEN, Managing Director
D. C. MACAROW, General Manager
T. E. MERRETT, Superintendent of Branches and Chief Inspector

A GENERAL BANKING BUSINESS TRANSACTED

236 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

New York Agency: 63 and 65 WALL ST.

The Bank of Nova Scotia

ESTABLISHED 1832

Capital.....	$6,500,000
Reserve Fund	12,000,000
Total Assets	Over 110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

important projects was suspended. The constantly increasing employment of cement for all purposes, including farmers and small users, has enabled the company to do a volume of business, the result of which we think will be satisfactory to you.

"The contracts relating to the new business undertaken by your company and referred to in the last annual report were completed during 1917. Other contracts of a similar nature have been entered into and are now being carried out.

"Dealing with the financial position of the company, attention is particularly called to the large reduction in bills and accounts payable. The total investments and current assets at December 31, 1917, is more than eight times the outstanding current liabilities, including accrued fixed charges."

CHEMISTRY IN GOOD PRINTING.

How Research Has Been Able to Assist the Printer in Making Faithful Reproductions.

There is an establishment in this country that does practically all of its business through its catalogues and, previously, where cloths were concerned, small samples were carefully cut out and attached to the pages, that the prospective customer might see the pattern and form some idea as to the quality through handling the fabric, says the *Scientific American*. The labor involved in preparing the samples and the stock required made up an annual expense item of more than $200,000. Research has been employed to overcome this large expense item.

The laboratory began its work to assist the printer in making faithful color reproductions and to supply information to the copywriter so that value for service could be expressed in terms of measurable factors.

In the printing plant there was to be considered the manner of making the half-tone plates, involving questions from the light filters to the etching fluids. There was, also, the subject of inks in all the variations of those important compounds, and the proper paper to give the desired results had to be chosen with a view to service and durability.

For the copywriter the characteristics of the fabrics were determined and the information reduced to expressions that would convey an accurate idea of value in service to the prospective customer. The work has been successful and the house in question finds it no more difficult, in fact it is easier, to sell goods with good printing than according to the old method.

By good printing we mean printing that accomplishes the desired purpose, and this is an example of good printing which would have been impossible without chemistry.

BINDER TWINE OF FLAX STRAW.

New Process Said to be Completed to Use Prairie Flax Straw Formerly Burned.

The Flax Fibre Development Association, of Regina, Sask., announces that it has discovered a process for manufacturing flax straw into binder twine, commercial twine, and yarns for weaving into heavy sacking and towelling. Heretofore, the flax straw of the three western provinces, amounting to over 1,000,000 tons annually, has been burned after threshing.

It is said that experiments, carried out this autumn, with the new binder twine, showed that it bound 99 per cent. of the sheaves perfectly, a better result than was obtained with sisal twine. A co-operative company is being formed to manufacture the new twine.

CONFIDENCE AND RESPECT

Some letter heads instinctively inspire ***Confidence*** and command ***Respect*** ---a result of good printing or lithographing on good papers.

Earnscliffe Linen Bond

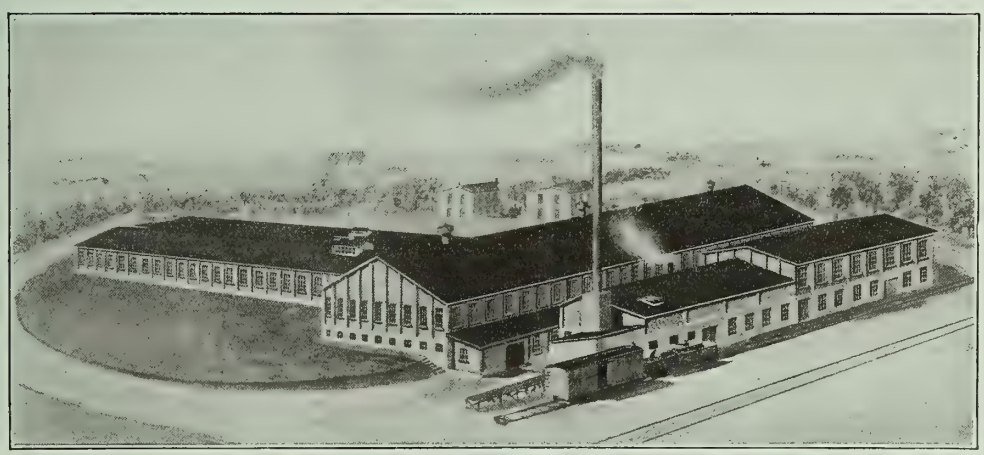
Crisp, white and strong, it combines the qualities that give character to the letter head.

Carried in stock by all reliable printers and lithographers.

The Rolland Paper Co., Limited

Head Office:
142 St. Paul St. West, Montreal

Mills at
St. Jerome and Mont Rolland



Coating Mill, Barber Division, Georgetown, Ont.

The Largest and Best Equipped Mill in Canada for the Coating of Paper.

"Maple Leaf" "Beaver" "C.A." Coated

Insist on these Brands being used in your Catalogue

PROVINCIAL PAPER MILLS CO., Limited

Toronto Office: Telephone Building. Private Exchange Adelaide 1986

THE BROWN BROTHERS LIMITED

Simcoe and Pearl Sts. TORONTO



MANUFACTURERS OF

ACCOUNT BOOKS, LOOSE LEAF LEDGERS

Binders and Specialties

LEATHER GOODS—DIARIES—STATIONERY

Printers' and Bookbinders' Supplies

DENNISTEEL

Made in Canada

Lockers and Shelving Will Save You Money!

They represent Canada's leading line of all-steel store, shop, factory and warehouse equipment, and are used by the largest firms in the Dominion.

FIREPROOF, indestructible, sanitary, space-saving, time-saving, money-saving.

We have some very interesting illustrated literature that may be yours for the asking. Let us send you full information on this modern equipment with a view to showing you where it will save you money.



Steel Lockers	Steel Cabinets	Steel Bins
Steel Shelving	Steel Partitions	Steel Chairs
Steel Stools	Steel Desks	Steel Tool Stands, etc.

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON CANADA

THE POPULAR PAPER

Bell-Fast Bond & Bell-Fast Ledger Paper

Has Gained This Prestige By Comparison

ASK YOUR PRINTER TO GIVE YOU SAMPLES AND PRICES OF BELL-FAST BOND & BELL-FAST LEDGER PAPER AND COMPARE WITH OTHER PAPERS

THIS WATERMARK 

GUARANTEES QUALITY

We have an exceptional booklet proving the popularity of Bell-Fast Bond and Bell-Fast Ledger Paper, a copy of which we will gladly send you on request.

Howard Smith Paper Mills, Limited, Montreal



QUALITY FIRST

GALT KNIFE CO., LIMITED

GALT - - - ONTARIO

MADE-IN-CANADA

Toronto, Ontario

Mr. Manufacturer:—

Are you sincere in your desire to boost and make greater the British Empire by the buying of Canadian made goods? If so, look over the following list of high-grade oils, greases, compounds and paints manufactured in our oil refinery at Petrolia and our paint works at Toronto, Ontario. A postal card from you will bring you full information regarding the goods in which you are interested.

CYLINDER OIL
ENGINE OIL
MACHINE OIL
DYNAMO OIL
TANNER'S OIL
BLACK LEATHER OIL
PARAFFINE WAX
MINERAL SOAP STOCK
BENZINE



WHITE LEAD
READY MIXED PAINT
COLORS IN OIL
VARNISHES
BLACK JAPANS
STEEL BRIDGE PAINTS
ROOFING PAINTS
CUP GREASE
LINSEED OIL SOAP

PETERBOROUGH
ONTARIO, CANADA

The Manufacturer in Peterborough has many advantages. He connects directly with the G.T.R. and C.P.R., and by canal with all principal Waterways. He has abundant cheap electricity. He draws for his labor from a population of 24,000 industrious, home-loving people. Peterborough is the town worth living in, having all City advantages with fine country surrounding, excellent educational facilities and very moderate living expense.

FINEST LOCATION IN CANADA FOR MANUFACTURERS

Hydro-Electric power is developed on the Otonabee River, and connecting Waters, by a system owned by the City, and rates are low. Peterborough has been notably free from labor troubles, and our Manufacturers have had no trouble in procuring labor of all classes. Labor costs less than in the larger Cities.

CENTRE OF POPULATION EXCELLENT TRANSPORTATION FACILITIES

If Transportation charges are an important part of your manufacturing problem, Peterborough will interest you. It has direct railway connection with all big Centres, being situated between Montreal and Toronto.

There are over 60 factories, the largest employing about 2,000 hands. It is the civic policy to encourage manufacturers, and the city is reserving for new comers a number of very desirable manufacturing sites. For further particulars, write, wire or telephone—

THE CITY CLERK, Peterborough, Ontario, Canada

Chemical Fire Engines

For Factory–Village–City. Capacities 20, 40, 50, 70 Gal.

OUR "JUNIOR" 40 GAL. ENGINE WITH MANY IMPROVEMENTS OVER THE ORDINARY TYPE, SELLS AT $150.00

The R. S. BICKLE COMPANY

WINNIPEG MONTREAL QUEBEC ADDRESS ENQUIRIES TO HEAD OFFICE, WOODSTOCK

EXPORTERS OF

Reed Organs, Piano Stools,
Music Cabinets.
Catalogue B.

The Goderich Organ Co. Limited
GODERICH, CANADA

Closet Seats,
Flush Tanks,
Medicine Cabinets,
Everything for the Bathroom.
Write for Catalogue C and Price List.

COMBINATION

LINK-BELT

"C" Class

for Elevating and Conveying

STRENGTH and low cost are combined in "C" Class Link-Belt. It is well established as a durable Link-Belt for elevating and conveying.



Length of life in service is increased by preventing motion between the pin and the side bars which hold it. The joints are accurately fitted to the side bars. A flat portion is milled accurately at the end of the pin, fitting into a carefully broached hole in the side bar. Obviously, this construction is superior to forged lugs or necks under the head to hold the pin in place.



"C" Class Link-Belt is preferred because of:

1—The pin construction.

2—High tensile strength in pins and side bars.

3—Cast centre links are made of the best grade of malleable iron for durability and strength.

4—The pin holes in the heads of the links are cored smooth and clean. A durable joint results.

5—Accurate pitch and small clearances are assured by accurately made patterns and dies.

6—Close-fitting joints keep out gritty material, and lengthen the life of the Link-Belt.

Write for Folder No. 306, which gives particulars regarding "C" Class Link Belt. Our experienced engineers offer their services in solving your problems in elevating, conveying and power transmission.

CANADIAN LINK-BELT CO., LTD.

Manufacturing Plant and Offices at
265 WEST WELLINGTON ST.
TORONTO

Shoe Regulations

Commercial Economy Board in the United States Has Worked Out Certain Restrictions

The shoe recommendations of the Commercial Economy Board of the Council of National Defence of the United States for the fall season of 1918 have now been issued in their final form to manufacturers, wholesalers and retailers. They are as follows:

1. That no woman's shoes should exceed nine inches in height (measured from breast of heel at side to center of top at side of finished shoe).

2. That no children's and misses' shoes should exceed seven inches in height (measured as above).

3. That each manufacturer should restrict his output of men's shoes, except canvas, to the following colors: black and two shades of tan.

4. That each manufacturer of women's shoes should restrict his output to the following colors: white, black, two shades of tan, and two shades of gray.

With the single exception indicated, the regulations apply to shoes of all materials.

The recommendations are part of the Commercial Economy Board's general programme of forehanddedly working with business men to eliminate needless uses of men, materials, equipment and capital as necessary to meet war requirements. The Board is working similarly for the conservation of various other materials including wool and woolen cloth, paint and tin, and for the simplification of retail delivery service, in each case with the voluntary co-operation of the men in the trade.

Some of the facts which the Board had in view in proposing further conservation in the shoe and leather business were the following:

That about 99% of the goat and kid skins used for shoes in the United States are imported, many of them from the remotest parts of the world, and that the tonnage necessary for these importations must be conserved; that about half of the other leather used for shoes is also imported in ships; that if, as is asserted, there are now large stocks of leather in the country, these stocks should nevertheless be husbanded; that excessive multiplicity of shoe styles means needlessly large amounts of capital in the stocks of dealers, at a time when the government is making increasnig demands for capital upon all citizens.

In conference and through correspondence this situation was laid before hundreds of representative men in all branches of the shoe and leather industry, from tanners to retailers, and their views were asked as to how the situation could best be met. There was widespread agreement on all four points of the recommendations as given above. The programme is already assured very general support. The Board expects this support to be unanimous. As a result, leather and other materials will be saved, waste effort in the making and selling of shoes will be reduced, the rate of turnover in factories and in wholesale and retail stores will be quickened, operating costs will be lowered, and considerable sums will be released for the purchase of Liberty Bonds. Furthermore, the Board is assured that the savings will be passed on to the public through closer prices on shoes.

The letters to the wholesalers and retailers request them to purchase only such shoes for the fall of 1918 as conform to the recommendations. At present no similar appeal to the public is contemplated.

CANADA FOUNDRIES & FORGINGS LIMITED

Original Producers and Distributors

Nail, Tinners', Farriers', Riveting, Machinists' Hammers



and Sledges, also Axes and Wedges of All Descriptions

Blacksmith Sledge No. 37. Cross Pein Solid Cast Steel

Produced at

The James Smart Plant, Brockville

JOHNS-MANVILLE

Asbestos

Resistant to heat, water, wear and weather

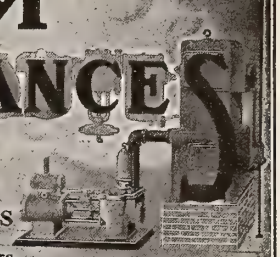
JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

Insulations Packings Steam Traps
Roofings and Building Materials
Electrical Products Household Specialties

THE CANADIAN H. W. JOHNS-MANVILLE CO., Ltd.
Toronto Montreal Vancouver Winnipeg

When you think of Asbestos you think of Johns-Manville

DARLINGS STEAM APPLIANCES



DARLING BROTHERS
LIMITED
Engineers and Manufacturers
MONTREAL, CANADA

Branches: Toronto and Winnipeg
Agents: Halifax, St. John, Calgary, Vancouver



HIGH-CLASS
MADE-IN-CANADA

AIR COMPRESSORS

Send us your inquiries

HAMILTON MOTOR WORKS, LIMITED
HAMILTON CANADA

STEEL FACTORY EQUIPMENT



Steel Shop Boxes, Foundry Boxes, Shelf Boxes, Shop Barrels, Stools, Oily Waste Cans, Garbage Cans.

Gasoline Tanks and Pumps, Pressure Tanks, Storage Tanks, Smoke Stacks.

Anything in Black or Galvanized Sheet Metal up to ⅛ thickness. Send blue print or rough drawing and get our prices.

Sheet Steel Sundries for manufacturers is one of our specialties.

Write us

The Steel Trough and Machine Co. Limited
TWEED, ONT., CANADA

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

*Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.

ALBERTA.

Calgary.

The Calgary Petroleum Products has started work on the construction of the first structure in the erection and assembling of the gas extraction plant, to cost $50,000. It will be ready for actual construction in the spring, and will be of the most modern type.

Cardston.

A thoroughly modern creamery, to be opened by April 1, 1918, is planned by the Chief Mountain Creamery Co., Main Street, Cardston.

Edmonton.

A new farmers' milling enterprise, the Northern Alberta Farmers' Milling Company, is under way here. A capitalization of $100,000 is authorized. It is intended to enlarge the former plant of the Edmonton Milling Company, Saskatchewan Drive, for the new company.

BRITISH COLUMBIA.

Keremeos.

The Food Products Co., of Vancouver, intend to more than double the capacity of its cannery.

New Westminster.

The Fraser River Shipbuilding Company has been formed at New Westminster to engage in the construction of wooden, steel and concrete ships of large tonnage. The site secured is in the Fraser River, within the city limits, and it is expected the yards when fully established will employ several hundred men.

Port Moody.

The Port Moody Steel Works are planning to remove the machinery from their present rolling mill to a new one to be erected upon Rocky Point. The Council of Port Moody has agreed to facilitate the removal and render what assistance they can towards securing Government assistance for



STYLE NO. 830

"Put it on Wheels"

A line of two-wheel metal trucks that are meeting success through their durability.

OUR CATALOGUE CONTAINS DETAILS

The W. S. Mahaffy Co.

Manufacturers Factory and Warehouse Trucks

10-16 Plymouth Ave. - Toronto, Canada

After June 1st, 2 Trafalgar Ave.

ARE YOU UTILIZING OUR SERVICES AND FACILITIES IN THE SOLUTION OF YOUR MANUFACTURING PROBLEMS?

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cannot afford to ignore any longer the question of testing your

RAW MATERIALS

IN YOUR PLANT to-day you are manufacturing a product to compete with those of a score of manufacturers who appreciate the value of testing their raw materials.

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OUR PRACTICAL MEN

are at your service for the solution of your difficulties—our services and suggestions will yield a dividend on your investment.

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Milton Hersey Co., Limited

Industrial Chemists, Engineers and Inspectors

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ESTABLISHED 1860

Sole Canadian Rights to Manufacture the

"HYDE"

Anchor-Windlasses

Steering-Engines

Cargo-Winches

Which have stood the Test of 50 YEARS



Propeller Wheels

Largest Stock in Canada!

Steel Castings

Cut Shows Largest Solid Propeller Ever Made in Canada

Manufactured By

The Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.

the extension of the plant and increase of output. The mill now in use is located unsatisfactorily for its present purposes, but it will be retained as a cast steel foundry and nut and bolt works. A six-ton, three-phase electric furnace is shortly to be installed there and another in the new plant.

A new electrical furnace has been installed at the Ætna Iron and Steel Works, and will be in operation by March 1, increasing the capacity of the plant to 600 tons of finished steel per month.

Vancouver.

The Redonda Canning and Cold Storage Company, Ltd., have plans for a cannery to be built in Deceit Bay, Redonda Island.

The Fraser Valley Shipbuilding Company is being organized locally to undertake the construction of all classes of vessels, wood, steel and concrete. A site is said to have been chosen on the Fraser River in the city.

The Wallace shipyards are being enlarged. Three or four new buildings will be constructed and the machine shop will be enlarged for the building of engines, boilers and other machinery.

The Western Canada Shipyards are contemplating the extension of their yards and plant on False Creek.

The Sidney Rubber Roofing Co., Ltd., which already has a plant at Sidney, Vancouver Island, is seeking to establish a plant in Vancouver involving an initial investment of $125,000. The firm will manufacture building paper of all kinds, and roofing felts, from waste paper and rags.

A syndicate has been formed which is to engage in steel and wooden shipbuilding at Vancouver. Negotiations have been entered into with the British Government regarding a contract for 12 vessels, and a total investment of $200,000,000 is planned for a permanent industry. E. F. Hutchings, of Winnipeg, is head of the corporation.

Victoria.

The Victoria Shipbuilding Co., Ltd., contemplate addition to their shipyards.

MANITOBA.

St. Boniface.

The Prest-O-Lite Co., of Winnipeg, will erect a factory at St. Boniface to cost $10,000.

NEW BRUNSWICK.

Fredericton.

The Hartt Boot and Shoe Co., Limited, York Street, contemplate the erection of a $50,000 factory.

NOVA SCOTIA.

Bridgetown.

A. L. Beeler has leased property along the north side of the Annapolis River, on which he intends to erect a shipbuilding plant.

Halifax.

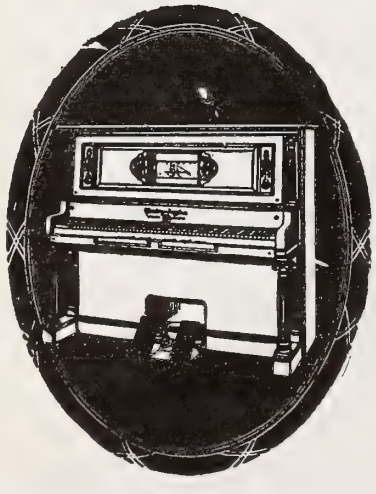
Fire destroyed the building on Upper Water Street occupied by the Martin-Senour Paint Company. Loss to building, $20,000. Owners, the Furness-Withy Company.

Pictou.

The Atlantic Milling Co. contemplates erecting a mill here.

Men forget business cares in the enjoyment of

Gourlay-Angelus
Player-Pianos



A GOURLAY-ANGELUS provides ANYONE with the ability to play ANY music artistically.

In the opportunity for recreation thus afforded, many busy men find enjoyment hitherto undreamed of, as well as a complete rest from the business worries and cares of the day. If you find it hard to leave these cares behind you when you go home, depend upon it, a Gourlay-Angelus will make you forget them.

One Toronto manufacturer tells of this pleasure in a Gourlay-Angelus as follows:—"I have always been glad I purchased the Gourlay-Angelus. The longer I have it the more I enjoy it and the more I use it."

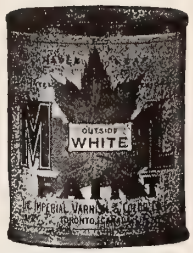
Write for Catalogue and Prices

GOURLAY, WINTER & LEEMING,
188 Yonge St., Toronto













The tins shown herewith—familiar throughout Canada—are made by the A. R. Whittall Can Company, Limited, and indicate a few of the many firms who are using our cans.

WE MANUFACTURE

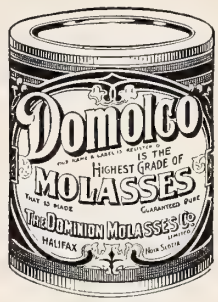
Round and Square Cans for Meats, Fish Fruit, Syrup, Paint and Varnish, Etc.

LEAD AND PUTTY IRONS

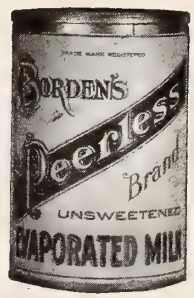
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MONTREAL -- CANADA

Write to us if you are interested in tin containers of any kind. We are doubling our plant to take care of new business.







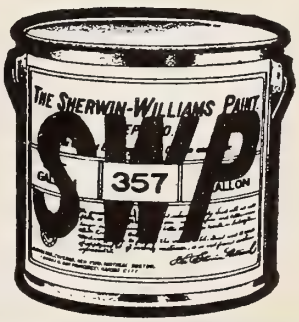




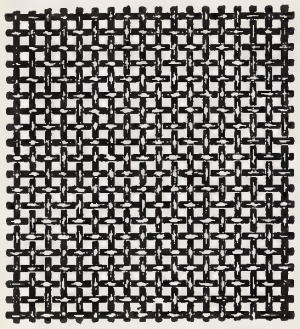








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Manufacturers of **Double Crimped Wire Cloth and Wire Screening** for all purposes of Iron, Brass, Copper, Bronze, Galvanized and Tinned Wire, etc.

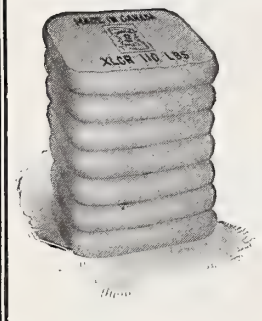
There is no kind of Wire Fabric required in the production of any machine or manufactured article that we cannot furnish.

We also manufacture:—

Bank and Office Grilles and Ornamental Iron Work in all finishes.

Wire Guards for Factory Windows, Moulders' Riddles, Laboratory Testing Sieves, Steel Factory Stools and Metal Lockers.

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"DOMINION"
COTTON AND WOOL WASTE AND COTTON WIPERS, WASHED AND STERILIZED

A WASTE FOR EVERY USE

6 Grades White Cotton Wiping Waste
5 Grades Colored Cotton Wiping Waste
4 Grades Wool Packing Waste
3 Grades Cotton Wipers, Washed and Sterilized

Samples with Prices on Request

Scythes & Company Limited
Montreal TORONTO Winnipeg

ONTARIO.

Brantford.

Plans are being prepared for $15,000 addition to factory for the Waddell Preserving Company, Limited, 131-133 Clarence Street.

The Monarch Tractor Company, of Watertown, Wisconsin, will locate its Canadian branch in Brantford, on Sydenham Street. Operations are to commence within ninety days.

The Steel Company of Canada will build an addition to its plant here, involving an expenditure of $100,000. Extensions to the company's plant at Hamilton, Ont., are also under way, in addition to the coke oven plant, which is expected to be completed by next spring.

W. C. Tilley, Temple Building, is preparing plans for $15,000 addition to factory for the Waddell Preserving Co., Ltd., 131-133 Clarence Street.

Campbellford.

The Northumberland Paper and Electric Company intends to repair and enlarge in the spring its building which was damaged by fire recently.

Cooksville.

The plant of the Ontario National Brick Company has recently been sold by the liquidators. The purchaser was Mr. F. W. Tofield, of Montreal, who represents Eastern interests, and the price paid was $250,000.

Fort William.

The Canadian Car & Foundry Co., Ltd., 1209 Laughton Avenue, contemplate the erection of a steel shipbuilding plant.

Guelph.

Contract has been awarded in connection with a $12,000 addition to the factory of the White Sewing Machine Company of Canada, Limited.

The Ontario Oakoal Co., Ltd., 908 Royal Bank Building, Toronto, are negotiating with the city with regard to establishing a plant for the manufacture of fuel.

Hamilton.

The scheme for the installation of a coke oven in Hamilton, Ont., is being revived. The United Gas and Fuel Company submitted a proposition to the council two or three years ago, but it was not received with favor. The matter has been brought up again, however, and owing to the fuel shortage, the City Council is more anxious to see the project realized. The cost of such a plant would be approximately $3,335,000 at the present time, while a couple of years ago it might have been built for about two and a half million.

London.

The Peerless Hosiery Company, Limited, Adelaide Street, contemplates the erection of a $15,000 three-story brick factory extension.

Smallman & Ingram, Limited, Dundas Street, contemplate the erection of a $5,000 steel concrete and ornamental iron balcony.

The London Soap Co., 197 Ottoway Avenue, contemplate $5,000 extensions to factory.

Perth.

Henry K. Wampole & Co., Herriott Street, have purchased considerable property and plan extensive building operations this year.

Helpful Economies in Electricity

During the present power shortage you can help save current for munitions plants and other war industries,

—by turning off every lamp, motor, etc., not actually needed

—by burning only 1 or 2 lamps in a cluster of 4 or 5

—by seeing that the lamps used are not bigger than necessary

—by discarding old style carbon lamps, which waste 66% of your current, in favor of Hydro Shop tungstens.

For the economies you are <u>now</u> practising we are very grateful indeed.

Toronto Hydro-Electric System

282 Yonge Street Branch—Gerrard and Carlaw

Fire! Fire! Fire!

Some of you get at the Pails---quickly

BUT SUPPOSING THEY CANNOT BE LOCATED



The first five minutes of any fire is when you need to be right on the job with a few pails of water—quick! Have a number of Eddy's Fibre Pails handy all the time and keep them filled. In an emergency they will save you thousands of dollars fire loss. A "Safety First" idea of this kind is not an expense. It is a necessary investment that may net you many thousand per cent. at any time. Better put in a battery of Eddy's Fibre Pails now rather than wish you had, when you behold your mill a pile of ashes and twisted machinery.

Our Fibre Pails are made of Fibreware, moulded and hardened under enormous hydraulic pressure and baked at extreme heat. These pails give you almost everlasting wear.

Eddy's Indurated Fibreware Fire Pails are made purposely with the rounded bottoms so that they cannot be hidden away like an ordinary pail, but have to be hung or stood in racks filled with water, where they are always on hand when wanted.

Is your Factory and Warehouse equipped with EDDY'S FIRE PAILS?











Full of Good Points

In fact as well as in name.

The shape of the teeth of the "Famous Five" Files was determined after many experiments.

Different shapes and depths are made, according to the work for which the File is intended.

Consequently you can get a "Famous Five" File that will cut fastest and leave the best surface on any kind of material.

And a "Famous Five" File will stay hard and sharp for the longest possible time.

Their cutting qualities have been standardized. You can rely upon them.

Specify them when ordering. They are:

Kearney & Foot
Great Western
American
Arcade
and
Globe
(MADE IN CANADA)



(DEALERS EVERYWHERE)

Peterborough.

Fire damaged the plant of the Peterborough Planing Mill Company.

Port Colborne.

The second Canadian Furnace Company ore bridge was blown down; damage about $100,000.

Port Dover.

Fire damaged the Penman woolen mill on February 15. Loss, $5,000.

Savanne.

The Hyamdo Pulp and Paper Co., of Rochester and New York, is reported to have bought Patrick Hogan's timber holding of nearly 300 square miles for over $200,000. The company may erect a pulp and paper mill.

Toronto.

Contract has been let for $15,000 manufacturing plant for the Toronto Laundry Machinery Company, Dundas Street.

Fire damaged the Hunter-Rose building, 12 Sheppard Street, on February 26. Loss, $20,000; damage to building, $3,000.

The Dominion Shipbuilding Company has obtained a permit to erect a workshop and general machine plant of steel and hollow tile to cost $175,000, at the foot of Bathurst Street in this city.

Permit to rebuild the munition plant damaged by fire has been issued to the Toronto Laundry Machine Co., Dundas St. and Sorauren Ave. Cost, $15,000.

Plans are being prepared for factory building for the Board of Control for the manufacture of electric railway cars.

The Ontario Wind Engine & Pump Company has taken out a permit for the erection on the corner of Atlantic and Liberty Avenues of a steel and iron silo factory to cost $4,000

The Swift Canadian Company, Keele and St. Clair Ave., will erect concrete and brick addition to boiler house, etc., costing $9,500.

Thos. Davidson Mfg. Co., Ltd., 120 Duke Street, contemplate the erection of a three-story brick addition to their warehouse.

QUEBEC.

Montreal.

The Gillette Safety Razor Company will enlarge its plant to five times the present capacity. The addition will cost about $750,000, and $180,000 worth of new machinery will be installed.

The Shawinigan Water and Power Co. is to erect and operate a plant for the manufacture of acetic acid for the United States Government. Work will start immediately on the new plant, which will be a duplicate of the plant owned and operated by Shawinigan through its subsidiary, the Canadian Electro Products Company. Cost, approximately, $2,000,000.

Pointe aux Trembles.

The Dominion Cement Co., Ltd., 92 Notre Dame Street E., have secured a site on which they intend to erect a cement plant. Secretary-treasurer, J. A. Vinet.



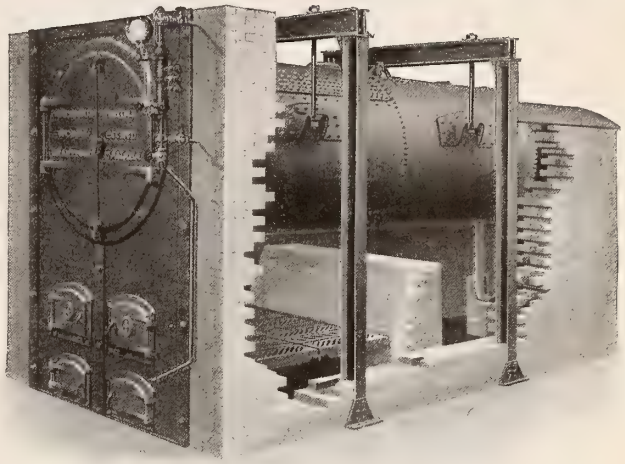
BUTTERFIELD TAPS

FOR a great many years, hundreds of careful purchasing agents have been buying Butterfield Taps with never a thought of "switching." They have learned by experience that Butterfield quality never varies. Butterfield Taps long since achieved unquestioned leadership and have retained that leadership unimpaired. They are universally preferred on shell work where speed and accuracy are of such paramount importance.

Butterfield & Co., Inc.

ROCK ISLAND, QUE.

BOILERS



FOR POWER AND HEATING USE

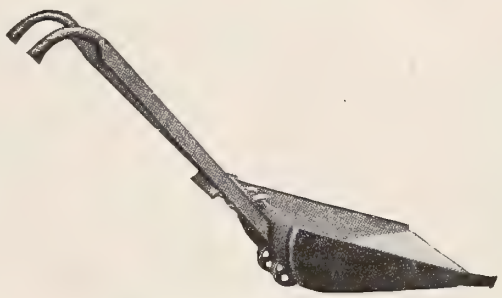
BOILERS IN STOCK

2—48″ x 14′ H.R.T. Boilers
3—54″ x 14′ H.R.T. Boilers
7—60″ x 14′ H.R.T. Boilers
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Waterous

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HAVE YOU A HANDLING PROBLEM?



No. 304—TRUCK SHOVEL

This TRUCK SHOVEL is built on the lines of an ordinary truck. It carries 200 lbs. coal or ore at a trip, and 2½ bushels of grain. It is made of heavy gauge steel and has wide-tired wheels which ensure easy running.

One man can unload a car of coal in half a day with a Truck Shovel.

MADE IN CANADA
BY

The Geo. B. Meadows, Toronto Wire, Iron and Brass Works Co. Ltd.

479 WEST WELLINGTON ST. TORONTO, CANADA

Quebec.

Price Brothers and Co. contemplate the erection of a $30,000 pulp and paper mill on the river Batiscan, near St. Narcisse.

Rimouski.

The Industrielle de Rimouski Cie. will rebuild their plant in the spring, which was recently destroyed by fire at a loss of $15,000.

Three Rivers.

The Page Wire Fence Co. of Canada, Limited, Walkerville, Ont., lately incorporated with a capital stock of $250,000, is contemplating the erection of a $1,000,000 steel plant to manufacture iron, steel, metals, and hot and cold ingots.

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CANADIAN COLLAPSIBLE TUBE CO., Limited
MANUFACTURERS OF
" Premier " Pure Tin, Plain and Decorated Collapsible Tubes
221 RICHMOND ST. WEST - - - TORONTO

HIGH COST OF DISCHARGING LABOR.

Economic Loss Caused to Industry by Unsteadiness in the Labor Market is Enormous.

During the year 1912 a group of factories with 37,274 employees hired 43,571 men, with a net increase of 6,697 men at the end of the year, 35,874 men having left during the same period and gone into other employment. It is estimated that in an average big factory employing 2,000 men, approximately 1,000 renewals will take place every year; that means that of the 7,000,000 men making up the industrial labor force of the United States, 3,500,000 change their places at least once every year. It is, of course, not unusual that in industries having a very sensitive seasonal trade, changes take place considerably oftener. The economic loss to the United States industry caused through this unsteadiness in the labor market is enormous. The cost of training a new man in an industry is valued as between $30 and $200, according to the industry and character of the work to be done. Taking even the lowest figure, it appears that our industries are losing more than $100,000,000 every year from that item alone. In addition to that there must be taken into consideration the expenses for hiring and discharging a man, which is commonly put in at between 1½ to 2½ per cent. of the pay-roll of the man according to the industry, amounting to $40,000,000 more. Much money doubtless might be saved by eliminating the necessity of discharging labor during slack seasons. In Europe good results have been obtained by using the quiet season in the home market for manufacturing for foreign trade. The changing seasons of the southern hemisphere bring orders to Europe just at the time when business gets slack in the European market.

STEEL CASTINGS



UP TO 100,000 LBS. EACH

LET US QUOTE
ON YOUR
REQUIREMENTS

CANADIAN STEEL FOUNDRIES
LIMITED

General Offices:
TRANSPORTATION BUILDING
MONTREAL

Works:
MONTREAL AND WELLAND

"Every Casting Clean and Uniform"

This is the reason our customers are sending us repeat orders on high-grade

GREY IRON CASTINGS
CORED OR SOLID

PLATING AND FINISHING OF CAST IRON FIXTURE PARTS AND ELECTRO GALVANIZING

We use no scrap when melting our iron, and we are more than commonly careful to see that everything conduces to flawless material and workmanship. A trial order from you will demonstrate the superiority of our service.

YOUR ENQUIRY IS SOLICITED
WRITE OUR SALES OFFICE

Electrical Fittings & Foundry, Limited

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ESTABLISHED 1850

DID YOU EVER NOTICE

that jarring, grinding noise in your machine shop caused by the metal gears?

Wouldn't you like to stop that noise? You can do it by using

NEW PROCESS GEARS
RAWHIDE PINIONS

They last indefinitely too

Ask us about it?

R. GARDNER & SON, LIMITED

Nazareth, Brennan and Dalhousie Streets
MONTREAL

MALLEABLE IRON CASTINGS

HIGH TENSILE STRENGTH

GALT MALLEABLE IRON CO.
LIMITED

GALT ONTARIO

United States War Purchases

Text of the Order Establishing a Section in the Chief of Staff's Office to Take Charge of Purchases

Supplementing the information given on page 1307 of the January issue of INDUSTRIAL CANADA with respect to the officials who buy war supplies for the United States Government, the following information as to the duties and powers of the new director of purchases may be of interest. They are contained in a general order of the War Department and run as follows:—

"To enable the Chief of Staff to exercise effectually his supervisory and co-ordinating powers in respect to the procurement of material, there is hereby created in the office of the Chief of Staff for the period of the existing war a section to take charge of, and to have general oversight of, the acquisition by purchase or otherwise of all supplies and munitions required for the use of the Army, and to exercise, under the Chief of Staff, the direct control incident to this service.

"The officer in charge is designated as Director of Purchases, and he will be given such assistance, commissioned and civilian, as may be necessary to fully execute this purchasing service, with office rooms in the War Department Building.

Function of Section.

"The function of this section to be known as the purchasing service, is to provide for the proper co-ordination of the procurement activities of the several branches of the Army. It will have general oversight over the procurement of munitions and supplies of every kind, whether by purchase, manufacture, or otherwise, and will advise and assist the Chief of Staff in reference thereto. This section will have direct supervision, under the Chief of Staff, of all those activities having to do with the procurement of an adequate supply of raw materials, for use either as such or in finished supplies, with the placing of purchase orders for manufactured products and the drawing of contracts for supplies, with the following up of production, with plans for increasing production, and with the inspection of finished products. This section will represent the Army in all arrangements made for co-ordinating the procuring activities coming under the jurisdiction of the War Department with other branches of the Government service.

Must Advise Director of Needs.

"It is made the duty of the chiefs of supply bureaus to keep the Director of Purchases fully informed of the condition of purchasing in their several bureaus, both as to finished products and those in process of manufacture, and to this end they will correspond directly with that officer.

"Under the supervision of the Chief of Staff, the Director of Purchases is charged with the duty of providing that all arrangements made for the purchase of supplies for the use of our forces in this country and in Europe shall be so correlated and otherwise scheduled as most effectively to forward the military programme and to otherwise facilitate the industrial activities of the Nation. To this end the Director of Purchases is authorized to call upon the supply departments for information, and to exercise control in matters of purchases made both within the territory of the United States and in foreign countries.

"Col. Palmer E. Pierce, General Staff, is hereby appointed Director of Purchases and detailed as an assistant to the Chief of Staff."

Four sections have been organized in the Office of the Director of Purchases, namely:

Section of supplies, over which Mr. Stettinius, the Surveyor-General, will preside.

The information and statistical section, with Dr. Leonard P. Ayres in charge.

The fiscal section, with Dr. Milo R. Maltbie at its head.

Section on organization and methods, with R. R. Montgomery in charge.

The Director of Purchases has the following assistants on his personal staff: W. F. Willoughby; Col. George H. Estes, General Staff; Maj. Guy Kent, General Staff.

Lieut.-Col. Douglas I. McKay has been named as assistant to the Director of Purchases.

Maritime Union Is Advocated

Hon. J. B. M. Baxter, ex-Attorney General of New Brunswick, One of the Strongest Advocates of Union, Tells Why He Believes in Such a Policy

At a recent meeting of the Canadian Club, of St. John, N.B., Hon. J. B. M. Baxter, former Attorney-General of New Brunswick, delivered an important address on the subject of Maritime Union.

Mr. Baxter began by saying that the problems of the day are not now looked at in the same light as they were before the war. Then, all problems were looked upon as settled; now, all problems are looked upon as open. Everywhere to-day, democracy is breaking through the trammels and regulations which time has imposed on humanity, and this is a time when men should have their minds open to new ideas. The idea of union is not a dream, it is not only a help, but a positive necessity, if the Maritime Provinces are to have their share in the larger administration that is their due? What is the need of union?

"We are looking for the development of the country. When New Brunswick came into the Union she came willingly. Nova Scotia demanded better terms. Perhaps the reason that New Brunswick so willingly joined the Confederation was because she looked for a more speedy fulfillment of the Confederation that actually took place. In 1892, it was thought that a great Canadian development would take place, and that to the city of St. John some great wealth would pour in from the west. These dreams were realized, excepting that the wealth poured through, rather than into, the city.

Hewers of Wood.

"We are hewers of wood and drawers of water for the rest of the Dominion. We take up one burden here, and we lay it down there; that is what our winter port means. We have not developed any great wholesale houses to hold the trade. We have seen our men of great ability go to the West, to develop the trade there. We were glad to see them go, we wished them to succeed, and we were being impoverished. Maritime Union means the union of the three provinces for a common purpose in the East. The last census that was taken shows that in Quebec the increase of the population amounted to 21 per cent.; in Ontario, the increase was 15 per cent.; against this, Nova Scotia's increase was only 7 per cent., and our own 6¼ per cent.; Prince Edward Island decreased 9¼ per cent. in that decade.

"These figures do not look favorable when we look at the increase in such a province as Quebec, which was thought to be always a very settled country. Then, looking at the

STEEL CASTINGS

Manganese, Chrome, and Nickel Steel Castings from ¼ of a pound to 30,000 pounds

Steel and Semi-Steel Machine Moulded Gears any size up to 18 feet in diameter without the use of patterns

Hull Iron & Steel Foundries, Ltd.

Head Office and Works - - HULL, P.Q.

Acid Open Hearth Steel Castings for all purposes

Dominion Steel Foundry Company, Limited

ANNUAL CAPACITY 15,000 TONS

Hamilton, Ontario

ELECTRIC STEEL CASTINGS

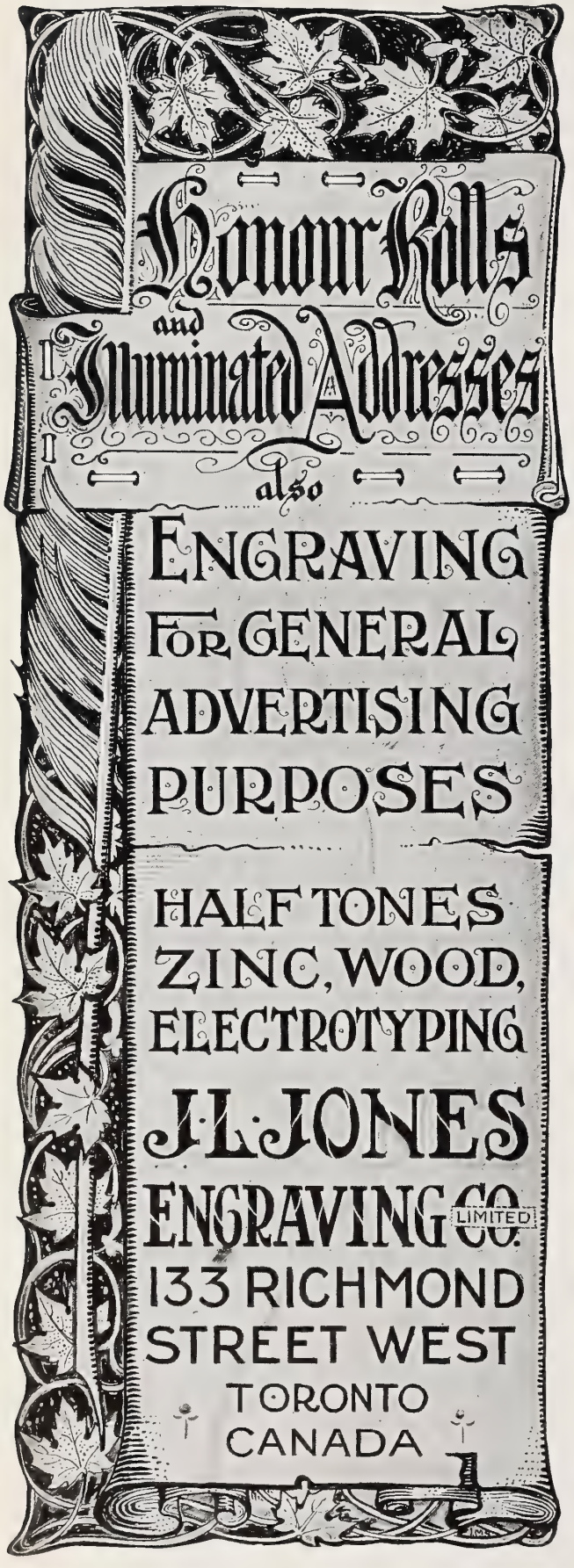
WE CAN SUPPLY

Carbon Manganese, Alloy, Steel Castings Forging Ingots, Etc.

Write for prices and particulars

The Electric Steel and Metals Company, Limited

WELLAND, ONTARIO



West, the increase in Alberta was 413 per cent.; in British Columbia, it was 120 per cent.; in Saskatchewan, it was 439 per cent. We have borne the burden, and have made that development possible. If the proportion of increase, or rather decrease, goes on at the same rate, the political power of these provinces will be lessened. But, it is not for the people of those provinces to whine because the West has a larger number of members than have these provinces, but it is reasonable to look at the problem, and see if it is not possible to increase the population, and so get a larger representation.

"How many men in provincial politics know one another? The people of the province would be astonished if they should learn the number of members of the provincial houses who do not know one another by sight, let alone by correspondence. These three provinces have practically the same resources, and yet they are pursuing three different paths, without consulting each other, even once a year, as to whether they will pursue the same policy. Party politics are largely to blame for this state of affairs. When one brand is in power in one province, perhaps another is in power in another, so that is not conducive to unity of purpose. If necessary, let us abolish all brands, if it will bring the representatives under one government. For, then, the representatives will come into contact with the needs and the desires of all three provinces. When the Federal representatives go to Ottawa from the local training school, they will have a wider outlook. Up to the present time, it has been common to say St. John or Halifax. If there was a united demand that all the trade possible should come to our ports, the slogan would be changed to St. John and Halifax, and other ports yet to be developed to take charge of the traffic which should only be handled, and will only be handled to advantage, through Canadian ports. A Union of the Maritime Provinces would result in one administration for about 1,000,000 people. This is by no means out of proportion, and it would mean that the resultant province would take a bigger rank beside the other provinces of the Dominion.

"In the Maritime Provinces, there is no reason why there should not be uniformity of commercial laws. If anything can be done to lessen the taxes for the merchant and to make his business simpler, it will tend towards the good of the community.

"The highway question ought, then, to be patent at a glance.

Means Greater Economy.

"In the union of the three provinces, great economy could be accomplished in the administration. For instance, the house need only be composed of about fifty representatives, which would be a great saving. In a smaller body, only the best men will be returned, and the handling of the administration of the province will be in the most capable hands. The provincial debts of the three provinces in 1916 were: Prince Edward Island, about $1,000,000, that is, $10 a head; in New Brunswick, it was $9,000,000, or $26 a head; in Nova Scotia, it was $13,500,000, or $27 a head. It is seen that Prince Edward Island is considerably lower, proportionately, with the other two provinces, and might, on that reason, not be inclined to enter a union on an equal footing with them. But, special consideration could be made. The incomes of the provinces are: Prince Edward Island, $5.30 a head; New Brunswick, $4.30 a head, and Nova Scotia, $3.90 a head. If these provinces are united, the income ought to be enough to run any decent state. Is it better to tread individual paths, or to link arms and walk together down the highway which Canada is treading?"

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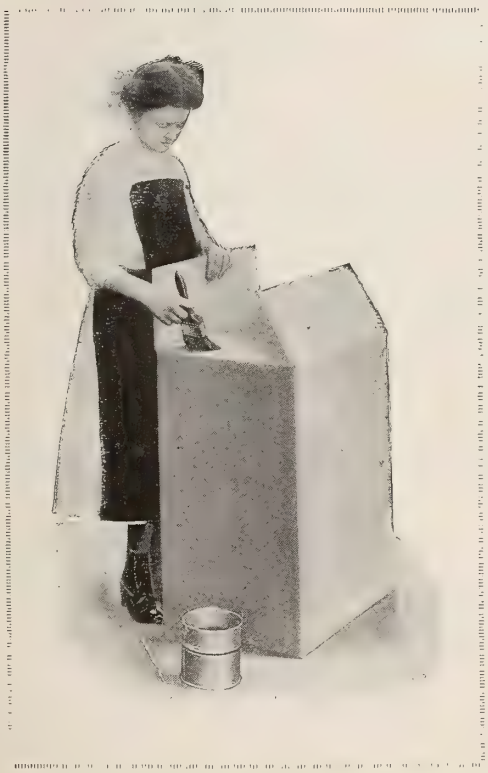
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Achievements of Scientific Management

The Best Modern Practice Consists in a Systematic Recording and Plotting of All Data in Connection with a Business, Putting it in Shape to be Easily and Quickly Understood

By W. E. WAGNER, B.A.Sc.

THE rapid advance made in the last few years, in almost every branch of the industrial field, has been made possible by the substitution of scientific and analytical study of industrial problems, for the old so-called rule-of-thumb ideas, and haphazard methods of production.

Scientific management, which has recently performed such wonders in the United States, under the direction of such men as Taylor, Gantt, Emmerson, Thompson, Barth, and Hathaway, is fundamentally an analysis of essential facts, that enter into or affect the economy and efficiency of production; and the study of events, inventions, and legislation which may affect the future prices of raw materials and products.

The success, or failure, of a business enterprise, will depend more, and more, in the future, on the manner in which these facts are traced, recorded, analyzed, and used.

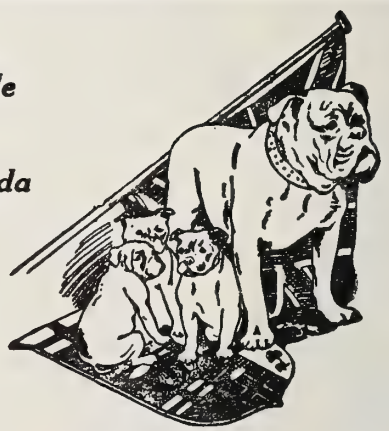
A committee of the American Society of Mechanical Engineers, formed to investigate this subject, found that successful operation along these lines resulted in "a reduced cost of product; greater promptness in delivery, with the ability to set and meet dates of shipment; a greater output, per worker, per day, with increased wages; and an improvement in the contentment of the workers." They suggested the adoption of the name "Labor-saving management," as being significant of results, but true, scientific management goes further than this.

Under the old system of management, the manager has his mind filled with a hundred and one details of operation, and his time is so taken up with forcing material through the shop, and getting orders filled, that he has no time to devote to problems that can possibly be postponed. He studies economy, too, but, more often than not, only in smaller things, not having the broad outlook necessary to achieve big results. There is an old maxim, which applies here, very aptly, "hold a penny too close to your eyes, and you fail to see the dollar beyond it."

The directors, too, in most instances, are satisfied, as long as the balance sheet shows a profit; but, let there be a falling off or loss, and they are ready for revolutionary changes, which are not always possible, for radical changes, to be successful, should take place gradually.

The best modern practice consists in a systematic recording, and plotting, of all data in connection with the business, in such shape as will be easily and quickly understood, and conveniently filed for reference; and from these reports, in conjunction with a knowledge of outside influences, to draw

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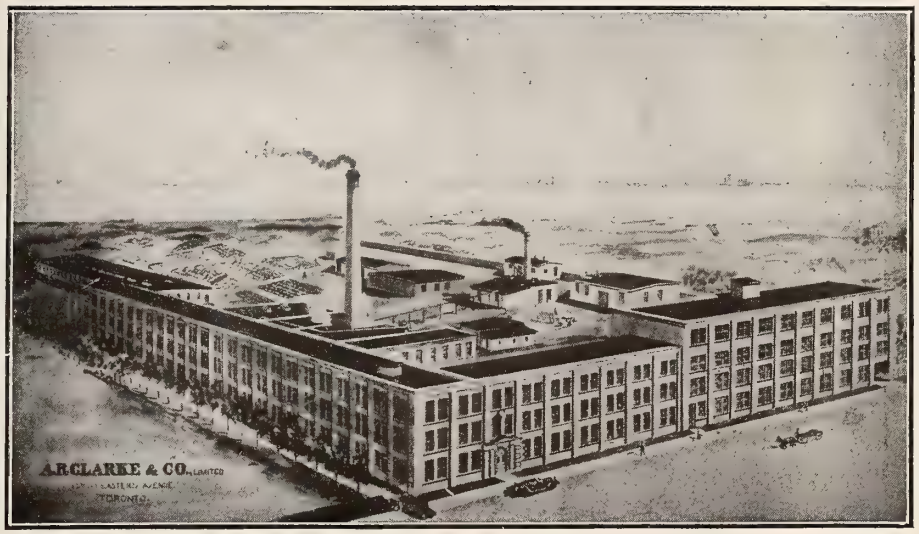
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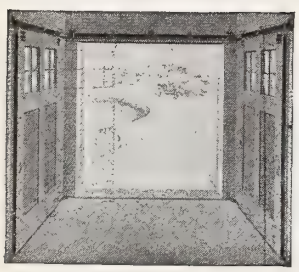
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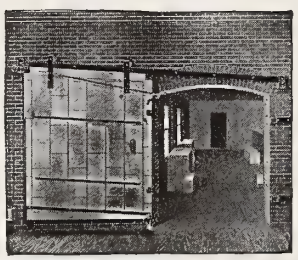
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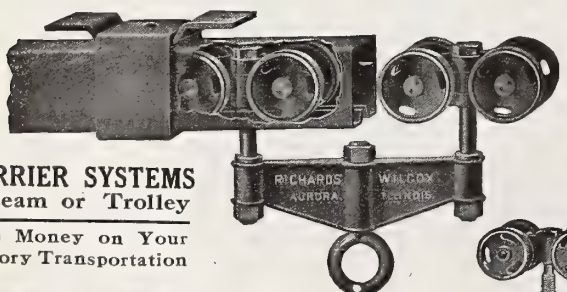
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conclusions, predicting future progress, under existing conditions, and under changed conditions.

The progressive manager is not loaded down with trivial matters, but has before him daily reports, or graphic charts, which give him an insight into every department, and even into the working of individual machines. At a glance he can detect a falling off, or need for improvement, in any part of the works; and his efforts are not devoted so much to routine work, as to the study of efficiency, and the planning for future output, and improvements.

Manager's Free Time.

Some of the methods by which this is possible are, a proper requisition system for supplies; separate stock rooms, and accurate stock reports; a good planning system, with instruction cards for workmen; standardized tools, and methods of operation; functional foremen; a complete factory order system, with work done to schedule; mnemonic symbols for classifying machines and manufactured products; and a simple, but reliable, cost system.

The manager will have at least part of his time free to study general conditions, which might affect the price, quantity, or quality, of materials used, or finished products required; and also to plan new ways for lowering the cost, and increasing the quantities of production and dispersement.

He will likely spend some time on new processes; revising specifications for materials, to meet changing markets, and improved methods; planning new work to increase the load factor of machinery, or utilize empty factory space; planning for the utilization of waste products; in motion study on machine operations, and the adaptation of a task and bonus system of payment, investigating new labor-saving appliances and automatic machinery; in welfare and betterment work; and in the study of means to secure the enthusiasm of employees and better co-operation between departments.

Department heads should have their duties clearly defined, and be allowed to work without interference, giving a basis for enthusiasm and a chance to show capabilities. Brisco defines an ideal organization as "The arrangement of mutually connected and dependent parts into a systematic whole, to work together with greatest harmony."

The results achieved by the introduction of a scientific study of processes, and the analysis of the least number of motions necessary to do any given piece of work, have been little short of marvellous, and, were it not for the testimony of some of the best and biggest corporations in the country, would hardly be credited.

Loading Pig Iron.

At the Bethlehem Steel Works, for instance, Frederick W. Taylor, the father of the scientific management movement, after a careful study of men and conditions, was able to increase the amount of pig iron, loaded on to flat cars, by hand, from 12½ to 47½ long tons, per day, per man.

At the same plant, by a systematic planning, in advance, of the work to be done by each man; by a careful selection of tools for every job; and by breaking up the labor gangs into units, the yard gang was decreased from 400 to 600, down to about 140.

Even in as old a trade as bricklaying, in which methods and tools have not changed in generations, and which would appear to be working at maximum efficiency, Frank B. Gilbreth, the Boston contractor, who was one of the first to introduce the new practice of motion study, was able to in-

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crease the number of bricks laid per man from 120 up to 350 per hour.

Sanford E. Thompson, who has paid great attention to motion study, by applying scientific principles, and carefully choosing girls with quick perception, or with what is known technically as a low "personal coefficient," in the inspection of ball bearings, was able to reduce the working force from 120 down to 35, and the working hours from 10½ to 8½ hours per day; and, at the same time, the accuracy at the higher speed was two-thirds greater than at the former lower speed.

In a cotton mill, after establishing an accurate cost system, and training workers, it was found that the average wages of the workers increased 40 per cent., product increased 80 per cent., and labor cost, per piece, was 60 per cent. of what it had been.

The important factor in labor cost is not the rate of wage, but the rate of output. It is not what you pay, but what you get for what you pay, that counts.

Wm. C. Redfield tells of a shop in Japan, making locomotives, in which the labor cost per locomotive was 3½ times as great, working from the same specifications, as in an American shop, paying a five times higher rate of wage.

Also in Singapore, at a brickyard, paying only 35 cents per day for labor, the cost per thousand for making brick was no lower than shown in a report of a brick manufacturer in an Eastern city in the States.

Timing Workmen.

Over and again, I have myself timed workmen, in European and South American countries, on building and other work; and been convinced that, with better methods, and competent supervision, by paying good wages for efficient work, the costs could be cut many times.

The chief factor responsible for discarding old methods and ideas—the medium through which it has been possible to study the effect of new methods of creating efficiency—has been the detailed cost system.

In view of the fact that the value of accurate cost keeping is universally admitted, it is the more surprising that such a small proportion of firms have already taken advantage of the knowledge derived from the experience of others.

Some, no doubt, have long intended to keep costs, but have never found the time, or had the required knowledge, and expert assistance, to get started on a working basis. Others, perhaps, have been afraid of the expense entailed by extra clerks, etc.; but it has been amply proven that complete records of material, labor and expense, can be gathered without unreasonable expenditure for clerical help, and the economy effected has been very great.

Too much attention cannot be paid to the manner in which the data obtained from the cost sheets is presented, in the form of reports. Failure to have the resultant facts clearly presented, and the consequent inability of executives to interpret and act on the information given, is the chief reason for curtailment in the benefits resulting.

Many plants have found, on analyzing the reports, after starting cost keeping, that some of their products, instead of being a source of revenue, are actually showing a loss; and, if the selling price cannot be raised, it is better to stop their manufacture, and concentrate on products which show the best net results.

Sometimes it is found that certain men and machines, on repair or special work, when their proportion of overhead expense is added, are being charged against the customer at a lower rate than is actually paid by the manufacturer.

Cost reports should give a detailed picture of items of expenditure—productive and non-productive—in each department, showing the proportion of expense cost per productive

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hour. A monthly report of expense to production will show if expense is increasing or decreasing, and an analysis of the various items constituting supplies, non-productive labor, repairs, etc., will allow a study to be made and followed, month by month, of their relation to production; and the effect observed of the ways taken to reduce them.

Value of Systematic Records.

Besides the direct results obtained by keeping systematic records, there is an indirect benefit of no small value in the responsibility felt immediately, by the foremen, for supplies, repairs, etc., charged to his department, an excess in which might show to his detriment in the office. Even operators will greatly improve the quantity and quality of their work, once they learn that the result of each job is a matter of record.

Industrial research work has also contributed largely to increased economy and output, by introducing better methods, and processes.

Formerly, production capacity depended largely on the skill and initiative of the workman, but now the rate of production possible is dependent on the design of machines and tools used. This has been amply demonstrated by the successful employment of unskilled labor, and girls, on munition work—a thing which never could have been possible a few years ago.

The application of high-speed steel-cutting tools has increased the capacity of machines two or three times, and has been instrumental in increasing their weight and power, which has been beneficial, not only in increased production, but in accuracy, due to greater rigidity, and consequent alignment. Fifteen years ago the turning of two pairs of locomotive driving wheels was considered a good day's work, but, with the use of high-speed steel, and new machinery, the capacity has been increased to 8 or 10 pairs; similarly, the output per machine of steel tire rims has been increased from 5 or 6 pairs to 18 or 20.

No business is of so ordinary a nature, and the knowledge of it so complete, that it cannot be benefited by research work.

The importance attached to this line of endeavor by the British Government is evidenced by the sum of £1,038,050, included in the 1917 estimates, to be put to the credit of the newly-formed department of scientific and industrial research.

Purely scientific research is conducted with the purpose of advancing knowledge, whether it is of practical benefit to mankind or not; whereas industrial research has but one object, and that to accompish a particular useful result.

Some Industrial Processes.

Chemists have quite recently been working on laundry processes, washing out various materials, in all the different compounds that ingenuity can suggest, seeking cheaper and better cleansers.

They have been kneading and baking bread all day, and cutting the newly-baked loaves, to count and measure the holes left by the yeast. They aim to reduce the number and size of these—producing bread of firm, even texture throughout. Already they have discovered how to make better bread with half as much yeast, saving one large bakery an almost incredible sum.

A shirt-maker is having a research conducted to find a method of removing oil stains from shirts during manufacture, the success of which will save him an estimated yearly amount of $30,000.

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war the work done along these lines has taken a sudden leap ahead, on account of the cutting off of foreign markets; and the immediate necessity of inventing processes for duplicating foreign products; and to discover new ways of adapting native products to replace them.

The most of what has been said and done in regard to economical production, has been in reference to large plants, because they have given a greater opportunity for the saving of large amounts of money; but the same percentage of economy can be achieved in small factories, and the principles involved can be adapted to stores, and even to homes and individuals.

The average man, who has not recognized the value to be derived from systematic records, if he is the owner of an automobile, has a very hazy idea of the quantity of oil and gasoline consumed per mile, from week to week; an exact knowledge of which would give him a fairly good insight into its running condition. He would be surprised at the saving to be achieved, in depreciation and repairs, by keeping the car running at a high percentage of efficiency.

Or he may go extensively into poultry-raising in his spare time, without being any wiser at the end of the season as to whether he has made or lost money thereby.

There is no person who does not almost daily have things brought to his attention, by reading or otherwise, which he makes up his mind to remember in case of need; yet, when the necessity arises, very few have been systematic enough to have the information filed, where it can be referred to. More than likely it has passed from the mind, and all trace of it lost.

ESTABLISHED MONTREAL OFFICE.

Canadian S K F Company Opens a Branch in Eastern City to Develop New Territory.

An office has been established in Montreal by the Canadian S K F Company, Toronto, for the purpose of taking care of the company's business in that territory and to give special service to users of S K F ball bearings. Harold Brown, formerly manager of the J. Stone & Co., Transportation Building, Montreal, handling the Stone railway lighting system, is in charge.

HOSIERY REGULATIONS.

Japan Establishes a Standard for Goods that May be Exported.

Some time ago the Department of Agriculture and Commerce issued regulations governing the quality of matches, enameled ware, glassware, and braids for export. With a view to improving the quality and enhancing the value of Japanese hosiery abroad, the government authority recently published regulations in regard to hosiery, setting forth the qualifications necessary for export. The total value of hosiery goods exported in 1913 was not more than ten million yen but it is estimated that for 1917 the figures will total four times that amount.

Hosiery Guilds in Tokyo, Osaka, Nagoya, Yokohama and Kobe have formed a strongly organized body called the Japan Hosiery Exporters' Associated Guild. This association, while making preparations to meet the exigencies of the commercial situation after the war, will act as a central body with regard to the standardization of the quality of hosiery for export. The Department of Agriculture and Commerce will also appoint inspectors.

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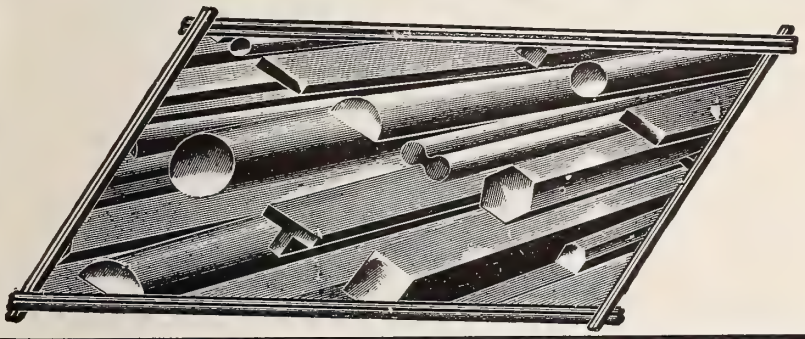
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Iron and Steel Industry for British Columbia

Expert Urges Application to Government for Aid to Establish Small Plant Based on Unit System and Capable of Supplying Local Demands; Later this Might be Expanded as Conditions Warranted

By A. ST. CLAIR BRINDLE, M.A.I.M.E.

(Reprinted from the Victoria, B.C., "Colonist")

IN view of the fact that discussion concerning the development of iron and steel prospects of the British Columbia coasts is again actively engaged in, I would like to add a few remarks on the subject.

Every once in a while the matter comes up for public discussion, waxes warm, then cools off to the usual comatose condition, with nothing being done—that is, nothing definite and concrete. We have commissions appointed, technical experts interest themselves and give forth facts and figures, and so on, but in the end the iron remains in the ground, and the great industry still remains a vision. We may now rest assured that unless definite, concrete steps are taken, on lines we can agree upon as most suitable to advance to the Provincial and Federal Governments the merit of our proposal, we may just as well save all this time, talk and ink.

The greatness of England—and how great she is both in character and industry is being amply demonstrated in this crucial time—has been built up primarily on her iron and coal resources, and the beneficent subsidiary industrial expansion following such development. The same may also be said of the United States and others. Yet not one of these nations, great as they have been built up in this particular, had their iron and coal resources situated so favorably as we have ours, for our iron, coal, limestone, etc., is literally lapped by deep sea water and contiguous to splendid harbors.

As to our reserves of these resources, I do not think it necessary for us to enter into any discussion of them just now, for most of us are firmly convinced that they are enormous.

Refractory Ore Not Handicap.

I am quite aware that our iron (on the coast) being the oxide "magnetite" Fe_3O_4 makes it a little more of a problem for us, as it is somewhat refractory in character. However, methods are changing, as well as times, and we now have processes commercially developed that will overcome this factor at small cost per ton, so that we need not worry about this particular phase of the subject.

I have noticed in previous discussions relative to this matter that whilst the subject matter has been most interesting and enlightening, the subject of comparative costs has not been brought out; that is, cost production in the east as against the west. Now as this is one of the vital factors in the problem for us, I feel constrained to open a discussion of this particular point, as there is room for much light to be shed on it.

At a meeting of the American Institute of Mining Engineers, held in San Francisco, shortly after the commencement of the war, all the essential factors of this matter were thoroughly gone into, pro and con, by some of the eminent engineers and technical experts of the United States. It is most pertinent for us to know that, after all the facts had been brought out in their full detail, and after full discussion of the various points thereto, the meeting was almost unanimous in agreeing that the time had fully arrived for the manufacture of steel products and iron ore smelting on the Pacific Coast. Of course the discussions were relative to their own problems—American, not Canadian. At the same time we are proportionately or relatively in the same position here in British Columbia as against the eastern manufacturers as were they in California. So the matter affects us in a similar way. In fact, any margin of difference favors British Columbia, for the important reason that Canada has been importing hundreds of thousands of tons of iron ore and steel products, thus adding a duty to our other costs. Now why should we have to pay this, with millions of tons of iron of the finest quality right in our own backyard, so to speak?

Cost Comparison.

I will content myself with giving just a bare outline of the compartive cost of producing pig iron at Pittsburg, Pa., and an estimated cost of same at Los Angeles, and I would point out that I have taken the figures from the paper of Mr. Chris. C. Jones, Consulting Mining Engineer of Los Angeles, prepared especially for the San Francisco meeting. The figures arrived at are based on normal rates for everything, and we ourselves must naturally base our plans on similar factors because the present abnormal conditions will not conceivably last very long, although probably long enough for the demand for iron and steel here to have an important bearing as a preliminary for a start of operations.

Cost of Pig Iron at Pittsburg—	
Iron ore, per ton pig	$8 62
Coke, per ton pig iron	4 15
Limestone, per ton pig iron	0 49
Scrap, cinder and scale	0 27
Labor and maintenance	1 37
Depreciation of furnaces	0 40
Total	$15 30

(Or per United States Government Reports 1913, $15.36 per ton.)

Estimated cost at Port Angeles, Cal.—	
Transportation, plus mining per ton pig, Bessemer grade	$3 19
Coke, per ton pig iron	8 02
Limestone, per ton pig	0 49
Scrap, cinder and scale	0 27
Labor maintenance at furnaces	1 37
Depreciation of furnaces	0 40
Total	$13 74

Regarding the Pittsburg costs, Judge Gary stated that there are credit deductions of $3.71 to be taken off for certain ores, transportation, etc., leaving a net cost per ton of $11.59, being a balance in favor of Pittsburg of $2.15 per ton, but the railroad freight rate on pig iron from Pittsburg to Los Angeles makes the net cost there (Los Angeles) $20.95, which really gives the credit balance per ton $7.21 in favor of Los Angeles. This is for production for pig iron, whilst for steel products the uniform railway rate is $16 per ton.

Mr. Jones (of Los Angeles) emphasized his remarks by saying that "simply stated, pig iron can be made in the regular blast furnace way at Los Angeles for less than $14 per



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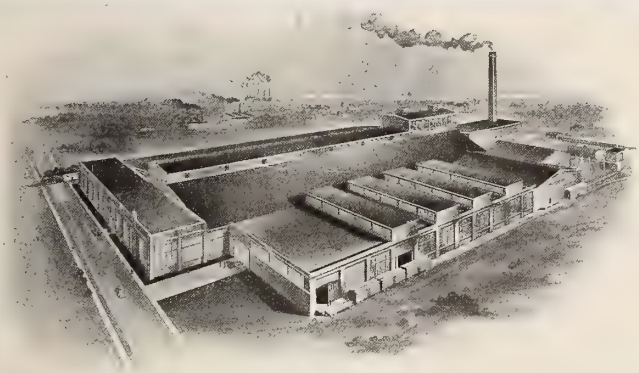
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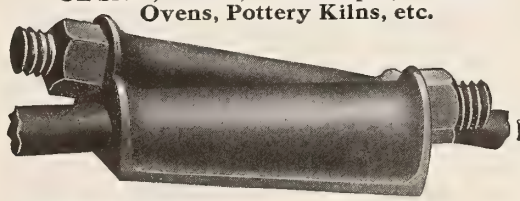
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ton, and no Pennsylvania pig iron, either by transcontinental rail or via Panama Canal, can be put in this market under $19 per ton. This leaves $5 per ton in favor of western production, and I presume myself that we in British Columbia are about as similarly situated ourselves between the east and the west.

The full details of the meeting, and especially the discussions, were illuminating and of particular interest to us at this time. I think it is of further interest for us to know that the meeting declared in favor of iron and steel production on the coast.

Water Power.

Now, getting back to our own matters, there is another favorable factor worth considering, and that is water power in connection with electric smelting of iron ores, etc.

We have any amount of power of this kind, and this can be utilized to smelt iron at lower cost, if sufficient aid would be given by the local and Federal Governments for proper equipment.

I have not gone into the matter of British Columbia markets, not having the data immediately at hand, and I think it has been published lately, and therefore is available. This is one of the vital factors for us to consider carefully. But if the evidence is finally conclusive that there is a good normal expanding market, then the sooner we make a start the better.

I would like to bring another point out here governing this matter as it applies to ourselves, and it is of considerable importance. Suppose, for the sake of argument, that we can at best only produce iron and steel at the same price as the eastern manufacturer. Then why should we have these great potential industrial factors and their epoch-making possibilities for British Columbia lie dormant in favor of the east? Let us keep our money in circulation here, and in the meanwhile be building up immense business expansion with all its subsidiary benefits.

Converting the Ore.

I must revert here to the matter of the character of our iron ores, for the reason that it is so frequently brought up as one of the chief factors unfavorable to us in the matter of cheap smelting. That is, the ore is of refractory nature. As I stated before we need not worry about this, as there are plants now in operation successfully handling similar ores, notably the New Jersey magnetites. Without entering into a full description of any of these, it will probably suffice to say that two of them are particularly suitable to handle our magnetites by "sintering," or "sintering and briquetting," by the Dwight-Lloyd and Grondel processes.

By these processes the ore is changed in character from magnetite to hematite, and it is done at a very low cost per ton, as the operation is most simple. Ore is charged on a conveyor travelling at slow speed into a furnace, and meeting a strong flame at the entrance is ignited (as it has had a certain percentage of carbon admixed with it) and at a certain temperature a chemical reaction sets in, the ore oxydizes, becomes cellular and spongy, and 90 per cent. of it becomes hematite.

The equipment of, say, the Dwight-Lloyd sintering plant for 100 tons per day only weighs 25 tons, and the whole plant housed and installed, would cost comparatively speaking very little. By this system or some other one the bugbear of our refractory ores being excessive in cost to smelt, etc., is overcome.

In my opinion too much stress should not be laid at this time on extensive and costly plant or plants. We have only a limited local demand as yet, and this is well known. Therefore in asking millions of dollars of government aid under

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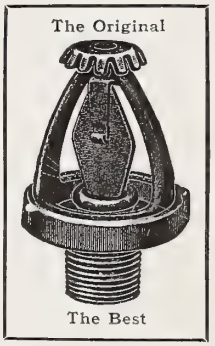
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such a condition it practically foredooms us to failure at the start. On the other hand, simply investigating affairs further as far as our reserves of ore is concerned is waste time. These have been investigated, and we have enough in sight to fill our own demands for years to come. I would ask for government aid to start operations on a small plant, based on a unit system and one that will be capable of supplying our local British Columbia demands. Then increase this as warranted. The main thing is to start. However, even starting only a small plant of this kind means that there are very many questions, important questions, that have to be carefully and thoroughly gone into in a practical manner, in order to have all the threads of the subject condensed to commercial factors.

The benefits that would accrue from even the operations of a small plant, with its subsidiary factors, such as the opening up of iron mines, limestone quarries, coking plant and its by-products and steel rolling mills would soon be enormous, and this is an end towards which we all should work diligently.

Canada's Tremendous Import.

In conclusion, I would say that in Canada, in 1914, we imported 882,636 tons iron and steel, valued at approximately $79,000,000, and exported only $14,000,000 worth. We charged to blast furnaces, Canadian ore, only 182,964 tons, but imported ore to the amount of 1,324,326 tons. In steel production and materials connected therewith, we handled 619,030 tons pig iron, 288,863 tons scrap, 723 tons manganese, 114,859 tons limestone flux and 7,845 tons fluorspor flux. Why not have our share of this business in British Columbia?

In the Federal Mines Report, 1915, it is stated we paid duty to the extent of, approximately, $65,000,000, for all steel, iron ore and manufactured products of this kind. Finally, therefore, why should we pay our share of this duty, having millions of tons of raw materials right here on our doorstep?

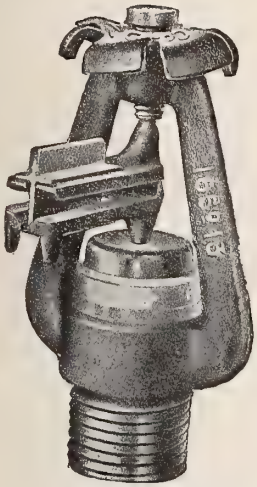
WANTS STEEL INDUSTRY.

Board of Trade of Nanaimo, B.C., Passes Resolution Appointing Special Committee on Steel.

At a recent meeting of the Nanaimo Board of Trade, the following resolution was adopted: "In view of the fact that it seems exceedingly likely that, in the near future, the Dominion Government will afford aid to the establishment of a steel plant in British Columbia, and that it is also more than likely that the Provincial Government will contribute towards the development of the steel industry of the Province;

"Therefore, be it resolved that this Board of Trade appoint a committee of five of its members, for the purpose of making full inquiry into, and gathering all the data available regarding, possible sites for a steel plant, in the neighborhood of this city, with freight rates, by both water and land, and all other matters which might have any bearing on the subject, in order that this Board of Trade may be in the position to make such representations to both governments, and to any firms desirous of establishing such a plant in this Province, as may lead to a thorough investigation of Nanaimo's claims for the establishment of such a plant here."

The Workmen's Compensation Board, of British Columbia, has moved its headquarters from Victoria to Vancouver.



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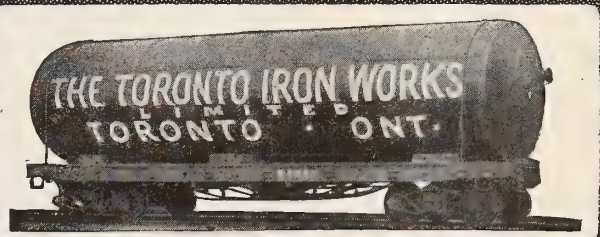
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Daylight Saving in U.S.

Provisions of the Bill Which Is Being Put Through Congress For This Purpose

The daylight saving bill introduced by Senator Calder at Washington has been amended so that its operation will extend through seven months instead of five months, as provided by the Senate Bill.

Clocks throughout the United States will be advanced one hour during the period between April and October. The hands will be turned forward at 2 a.m. on the last Sunday in March and turned back again on the last Sunday in October.

The change has been urged by The Merchants' Association and by many other organizations and business men throughout the country. The coal famine made the necessity for the passage of the bill strictly apparent. Its operation will cut off an hour in the evening when light is wholly artificial.

Provisions of the Bill.

The provisions of the bill in its present form are as follows:

"For the purpose of establishing the standard time of the United States, the territory of continental United States shall be divided into five zones in the manner hereinafter provided. The standard time of the first zone shall be based on the mean astronomical time of the seventy-fifth degree of longitude west from Greenwich; that of the second zone on the ninetieth degree; that of the third zone on the one hundred and fifth degree; that of the fourth zone on the one hundred and twentieth degree, and that of the fifth zone, which shall include only Alaska, on the one hundred and fiftieth degree.

Effect of the Measure.

"Within the respective zones created under the authority here the standard time of the zone shall govern the movement of all common carriers engaged in commerce between the several States, or between a State and any of the territories of the United States, or between a State or the territory of Alaska and any of the insular possessions of the United States or any foreign country.

"In all statutes, orders, rules and regulations relating to the time of performance of any act by an officer of department of the United States, whether in the legislative, executive or judicial branches of the Government, or relating to the time within which any rights shall accrue or determine, or within which any act shall or shall not be performed by any person subject to the jurisdiction of the United States, it shall be understood and intended that the time shall be the United States standard time of the zone within which the act is to be performed.

"At 2 o'clock antemeridian of the last Sunday in March of each year the standard time of each zone shall be advanced one hour, and at 2 o'clock antemeridan of the last Sunday in October in each year the standard time of each zone shall, by the retarding of one hour, be returned to the mean astronomical time of the degree of longitude governing said zone.

From March to October.

"So that between the last Sunday in March at 2 o'clock antemeridian and the last Sunday in October at 2 o'clock antemeridian in each year, the standard time in each zone shall be one hour in advance of the mean astronomical time of the degree of longitude governing each zone, respectively.

"That the standard time of the first zone shall be known and designated as United States standard Eastern time; that

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of the second zone shall be known and designated as United States standard Central time; that of the third zone shall be known and designated as United States standard Mountain time; that of the fourth zone shall be known and designated as United States standard Pacific time, and that of the fifth zone shall be known and designated as United States standard Alaska time."

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Japanese Government Taking Steps to Secure Independent Wool Supply.

According to a report issued by the Japanese Government the authorities have in view the breeding of a special strain of sheep suited to the Empire's climate so that the country may in time be independent of foreign wool markets. It is planned to set aside 300,000 yen ($150,000) this year and 500,000 yen in 1919 for the importation and improvement of foreign breeds and the dissemination of the improved breed throughout the country. It is estimated that in seventeen years the plan will have been fully worked out, when Japan will supply her own wool needs.

The report also deals with the wool producing endeavors of other countries. The most successful country appears to be Australia where Shropshire and Merino sheep receive the most attention. The success of New Zealand in raising sheep for butchering purposes is pointed out. At Cape Town, cross breed and merinos, especially the latter, are raised, but so far the results have not been very encouraging. Germany is reported as favoring sheep which give good meat rather than much wool.

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Every city has hundreds of exhaust pipes discharging steam into the air, says *Power*, a waste from small industrial plants which might be stopped by a slight expenditure for pipe extension which would connect these hundreds and thousands of non-condensing engines to the heat system of adjoining properties, thus heating buildings with steam that is going to waste, permitting the shutting down of thousands of heating boilers, and the diversion of coal to power plants which urgently need it in the present crisis. *Power* favors what is termed the isolated block central station for the cheapest, most economical, and most convenient production of heat, light, and power. This idea has been developed to some extent in the larger cities, but never on the extensive co-operative lines which the present fuel crisis demands. In proof that such a system would pay, there are cited the central steam-heating plants in many cities and suburbs, which generate steam for no other purpose than to supply heat to customers, not as a by-product, but as a commercial proposition, carrying satisfactory profit. Besides the convenience of such a system to steam-using customers, and the more economical burning of fuel at central stations, with non-fluctuating supplies of heating steam day and night during winter, the isolated-block plant would make unnecessary the large investment in small boilers and furnaces for office buildings, stores, residences, schools, churches and the like.

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AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.

ALE
E. L. Drewry, Winnipeg, Man.

ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*The Steel Company of Canada, Limited, Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros., Ltd., Winnipeg, Man.

BAND RESAWS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London, Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst, N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BEER
E. L. Drewry, Winnipeg, Man.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal, Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton, Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited, Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS
*The National Acme Mfg Co., Montreal., Que.

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

*For Display Advertisement see Index, Pages 1573-1574



By Royal Warrant

"Canadian Club" Whisky

Fully Ripened in Wood. Age Guaranteed by Government.

QUALITY UNEXCELLED

Distilled and Bottled by

HIRAM WALKER & SONS
LIMITED

Walkerville, Canada

LONDON CHICAGO NEW YORK
MEXICO CITY VICTORIA, B.C. WINNIPEG

BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
***The Booth-Coulter Copper & Brass Co., Ltd., Toronto.**
***Mueller Mfg. Co., Sarnia.**
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
***The Kerr Engine Co., Ltd., Walkerville, Ont.**
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS GOODS
*United Brass & Lead Ltd., Toronto.

BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
***The Waterous Engine Works Co., Ltd., Brantford, Ont.**

BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.

BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.

BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.

BRIDGES, Railway and Highway
***Dominion Bridge Co., Montreal.**
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.

BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont

BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.

BUCKET TANKS
*The General Fire Equipment Co., Limited, Toronto, Ont.

BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.

BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company. Toronto and Montreal.

BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.

BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.

CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.

CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.

CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.

CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.

CAMERAS
Canadian Kodak Co., Limited, Toronto.

CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.

CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.

CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.

CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.

CANVAS
*Scythes & Co., Ltd., Toronto.

CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.

CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.

CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto.

CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto.

CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd.

CARBONS, flame
Canadian Carbon Co., Limited, Toronto.

CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.

CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited.

CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.

CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited. Toronto.

CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.

CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier

CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.

CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.

CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.

CARTONS, lithographed
Harris Lithographing Co., Toronto.

CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.

CASTINGS, grey iron
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
***The Goldie & McCulloch Co., Ltd., Galt, Ont.**
***Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.**
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

CASTINGS, malleable iron
*Galt Malleable Iron Co., Ltd., Galt, Ont.

CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.

CATALOGUE MAKERS
Grip, Ltd., Toronto.

CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.

CELLBOARD
Adams Cellboard Co., Toronto, Ont.

CEMENT GUNS
Steel and Radiation, Ltd., Toronto.

CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.

CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.

CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.

CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.

CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.

CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.

CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited, Toronto

CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.

CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto

CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.

CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.

CLOCKS, TIME
*International Business Machines, Limited, Toronto.

CLOCKS, WATCHMEN'S
*The General Fire Equipment Co., Limited, Toronto.

CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.

CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.

CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.

CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.

CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.

CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.

CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.

COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.

COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.

COFFEE
S. H. Ewing & Sons, Mentreal, Que.

COLD DRAWN SHAPES, flats, squares and hexagons
***The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.**
***Union Drawn Steel Co., Limited, Hamilton, Ont.**

COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.

COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.

COLLARS
The Standard Shirt Co., Limited, Montreal, Que.

COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.

COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.

COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto

CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.

CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.

CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.

CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.

CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
*Canadian Allis-Chalmers, Limited, Toronto.

CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.

COPPER
***Eugene F. Phillips, Electrical Works, Limited, Montreal.**
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

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COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.

COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

CORKS
S. H. Ewing & Sons, Montreal, Que.

CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.

CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.

CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.

CORSETS
Dominion Corset Co., Quebec, Que.

COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.

COTTONADES
Hamilton Cotton Co., Hamilton, Ont.

COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.

COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

CRANES
*Northern Crane Works, Walkerville, Ont.

CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.

CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.

CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.

CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.

CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.

CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.

CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

CUPS, presentation
Standard Silver Co., Toronto.

CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.

CURLED HAIR
*Delany and Pettit, Ltd., Toronto.

CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.

CUTLERY
Standard Silver Co., Toronto.

CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.

DENIMS
Hamilton Cotton Co., Hamilton, Ont.

DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

DESIGNERS
Ontario Engraving Co., Hamilton, Ont.

DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.

DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

DESSICATED VEGETABLES
Grahams Limited, Belleville.

DIES
*John Whitfield Co., Toronto.

DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.

DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

DISINFECTING APPARATUS
Spramotor Co., London, Ont.

DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.

DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.

DRESSING, belt.
Sadler & Haworth, Montreal, Que.

DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.

DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.

DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.

DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.

DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.

DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.

DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.

DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.

DYNAMITE
Canadian Explosives, Limited, Montreal, Que.

DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.

DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.

EIDERDOWN
Galt Knitting Co., Ltd., Galt.

ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.

ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.

ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.

ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.

ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.

ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.

ELECTROTYPING
Central Press Agency, Toronto.

ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.

ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.

ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.

ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.

EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.

ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.

ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.

ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.

ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.

ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

ENGINES, oil, gasoline and kerosene
*Gilson Manufacturing Co., Ltd., Guelph.

ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.

ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.

ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.

ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.

ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.

ENGRAVERS, wood
Ontario Engraving Co., Hamilton Ont.

ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.

ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.

ENGRAVING
*J. L. Jones Engraving Company Toronto.

ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited. Ottawa, Ont.

ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.

EVAPORATED APPLES
Grahams Limited, Belleville.

ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.

EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.

EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.

FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.

FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.

FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

FASTENERS, belt
*Sadler & Haworth, Montreal, Que.

FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P Q
*Beveridge Paper Co., Limited Montreal.

FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.

FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.

FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.

FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull Que.

FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.

FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.

FILING CABINETS
*Office Specialty Co., Newmarket, Ont.

FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.

FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.

FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.

*For Display Advertisement see Index, Pages 1573-1574

FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited. Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited. Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FLAGS
*Scythes & Co., Limited, Toronto.
FLASHLIGHTS
Canadian Carbon Co., Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited. Hamilton, Ont.
FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin, Ltd., Toronto.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, hot air
Bedford Stove Co., Bedford, Que.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.
GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited. Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto.
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.

GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited. New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUAGES
*John Whitfield Co., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W Fearman Co., Ltd., Hamilton Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Ont.
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.

HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.
HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.
HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.
HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.
HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.
HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.
HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.
ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont
ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal Que.
INCUBATORS & BROODERS
Lee Mfg Co., Ltd., Pembroke, Ont.
INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont
INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.
INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.
INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.
INVERTS
Standard Clay Products, Ltd., St. Johns, Que.

*For Display Advertisement see Index, Pages 1573-1574

IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth N.S.
IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.
IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.
JAM, canned goods, etc.
E. D. Smith & Son, Limited.
JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.
JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.
JOINTERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.
JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.
JEWELRY, gold-filled
Caron Bros., Montreal, Que.
JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont
JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
KILNS
*Sheldons, Limited, Galt, Ont.
KINDLING
Standard Fuel Co., Toronto.
KNIFE GRINDERS
*W. H. Banfield & Sons, Toronto.
KNITTED GOODS
*Penman's, Limited, Paris, Ont.
KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.
KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.
KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto
LABELS
Lawson & Jones, Ltd., London, Ont.
LABELS, lithographed
Harris Lithographing Co., Toronto.
LACE LEATHER
F. C. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.
LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.
LAGER
E. L. Drewry, Winnipeg, Man.
LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.
LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.
LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.
LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.
LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.
LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.
LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.
LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.
LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.
LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.
LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.
LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.
LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.
LEATHER, hemlock sole
The Breithaupt Leather Co., Ltd., Berlin, Ont.
LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.
LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.
LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.
LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.
LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.
LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.
LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.
LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.
LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.
LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.
LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.
LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.
LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.
LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.
LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.
LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.
LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.
LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.
LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.
LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.
LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.
MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.
MACHINE TOOLS
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.
MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.
MACHINERY, iron working
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, punching and shearing
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, railroad and car shop
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
MACHINERY, special
Bawden Machine Co., Limited, Toronto.
MACHINERY, tannery
W. P. Plant, Hastings, Ont.
MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.
MACHINERY, woodworking
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.
MACHINES, painting
Spramotor Co., London, Ont.
MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.
MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.
MAPLE PRODUCTS
*Maples, Limited, Toronto.
MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.
MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.
MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MATCHES
*The E. B. Eddy Co., Ltd., Hull.
MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.
MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.
METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.
METAL CEILING
*The Pedlar People Limited, Oshawa.
METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
*The Pedlar People Limited, Oshawa.
METAL PACKING
*Garlock Packing Company, Hamilton, Ont.
METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.
METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
METAL SHINGLES
*The Pedlar People Limited, Oshawa.
MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.
MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.
MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.
MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.
MORTISERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
MOTOR CARS
*Ford Co. of Canada, Ford, Ont.
MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.
MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, electric (repairing)
Consolidated Electric Co., Limited, Toronto.
*T. & H. Electric Co., Hamilton.
MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
MOULDERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
NAILS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

*For Display Advertisement see Index, Pages 1573-1574

NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto.
NAPHTHA
*The Imperial Oil Co., Limited, Toronto.
NICKEL OXIDE
Coniagas Reduction Co., Limited, St. Catharines, Ont.
NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.
OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.
OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.
OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.
OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.
OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.
OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.
OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.
OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.
OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.
OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.
ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.
ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.
ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.
OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.
OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.
OVERHEAD RUNWAYS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.
OXYGEN
*L'Air Liquide Society, Montreal.
PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.
PACKING BOXES
Barchard & Co., Limited, Toronto.
PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.
PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.
PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.
PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.
PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.
PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.
PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.
PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.
PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.
PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.
PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.
PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.
PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.
PAPER, wall
Stauntons, Ltd., Toronto.
PAPER, Waxed
Business Systems, Ltd., Toronto.
PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.
PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.
PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.
PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.
PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.
PATENT LITIGATION
Ridout and Maybee, Toronto.
PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.
PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.
PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.
PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.
PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.
PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
PIANOS
Dominion Organ & Piano Co., Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.
PIANO KEYS
The Otto Higel Co., Ltd., Toronto.
PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIANO, player actions
The Otto Higel Co., Ltd., Toronto.
PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.
PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.
PINS, society, emblems and badges
Caron Bros., Montreal, Que.
PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES, black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
*Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
PRESSES, veneer
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London, Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.

*For Display Advertisement see Index, Pages 1573-1574

*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.

PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.

PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.

PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.

PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.

RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.

RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.

RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.

RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.

RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.

RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.

READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.

REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.

"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.

REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.

REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.

REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.

REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.

REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.

REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.

REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.

RINGS, gold
Caron Bros., Montreal, Que.

RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.

RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.

ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.

ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.

ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.

RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.

RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.

RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.

RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.

RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.

SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.

SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.

SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.

SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SANDPAPER
*Delany and Pettit, Ltd., Toronto.

SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.

SALT
Canadian Salt Co., Ltd., Windsor, Ont.

SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.

SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.

SAWS
*E. C. Atkins & Co., Ltd., Hamilton
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.

SAWS, crosscut and band
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWS, circular mill
Shurly & Deitrich, Galt, Ont.

SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.

SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.

SAWS, rip
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.

SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.

SCALES
The Gurney Scale Co., Hamilton, Ont.

SCALES, counter
The Gurney Scale Co., Hamilton, Ont.

SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.

SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.

SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.

SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.

SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.

SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co., Ltd., Toronto.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited, Toronto.

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

*For Display Advertisement see Index, Pages 1573-1574

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal
*McGregor & McIntyre, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada Limited Walkerville, Ont.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PLATE WORK
*Toronto Iron Works, Ltd., Toronto.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.

TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Business Machines, Limited, Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.

TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.

TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.

TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.

TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.

TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited St. Catharines.

TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.

TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.

TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.

TRUCKS
The Gurney Scale Co., Hamilton.
*Northern Crane Works, Limited, Walkerville.

TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.

TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.

TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.

TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.

TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.

TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.

TUBING, Fibre
*Beveridge Paper Co., Limited, Montreal.

TUBING, gold and silver
Canadian Seamless Wire Co., Toronto

TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.

TURPENTINE
*Brown Corporation, La Tuque, Que.

TWEEDS
Rosamond Woollen Co., Almonte, Ont.

TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.

TWINES, binder
Brantford Cordage Co., Ltd., Brantford, Ont.

TWINES, cotton
Hamilton Cotton Co, Hamilton, Ont.

TWIST DRILLS
*John Morrow Screw and Nut Co., Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada, Dundas, Ont.
*The Wilt Twist Drill Co., Ltd., Walkerville, Ont

UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.

UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

UNIONS
*Dart Union Co., Ltd., Toronto, Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.

UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.

VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Penberthy Injector Co., Ltd., Windsor.

VALVES, regrinding globe, angle, cross checks, swing checks.
Penberthy Injector Co., Ltd., Windsor, Ont.

VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.

VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd., Galt
J. & J. Taylor, Ltd., Toronto.

VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.

VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto.

VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

WAGONS
Tudhope Anderson Co., Ltd., Orillia.

WALL COPING
Standard Clay Products, Ltd., St. Johns, Que.

WASHERS
*The Steel Company of Canada, Limited, Hamilton.

WASHERS, fibre
*Beveridge Paper Co., Limited, Montreal.

WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.

WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited, Montreal.

WASTES, wool and cotton
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited, Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

*For Display Advertisement see Index, Pages 1573-1574

WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John McDougall Caledonian Iron Works Co., Ltd., Montreal Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia, Ont.

WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHISKY
*Hiram Walker & Sons, Ltd., of Canada, Ltd., Hamilton, Ont. Walkerville, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal. Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co.

WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.

WOOD BORERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Pages 1573-1574

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IF NOT YOU ARE BURNING MONEY

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F & Co. Quality & Service

SHEET METAL WORK
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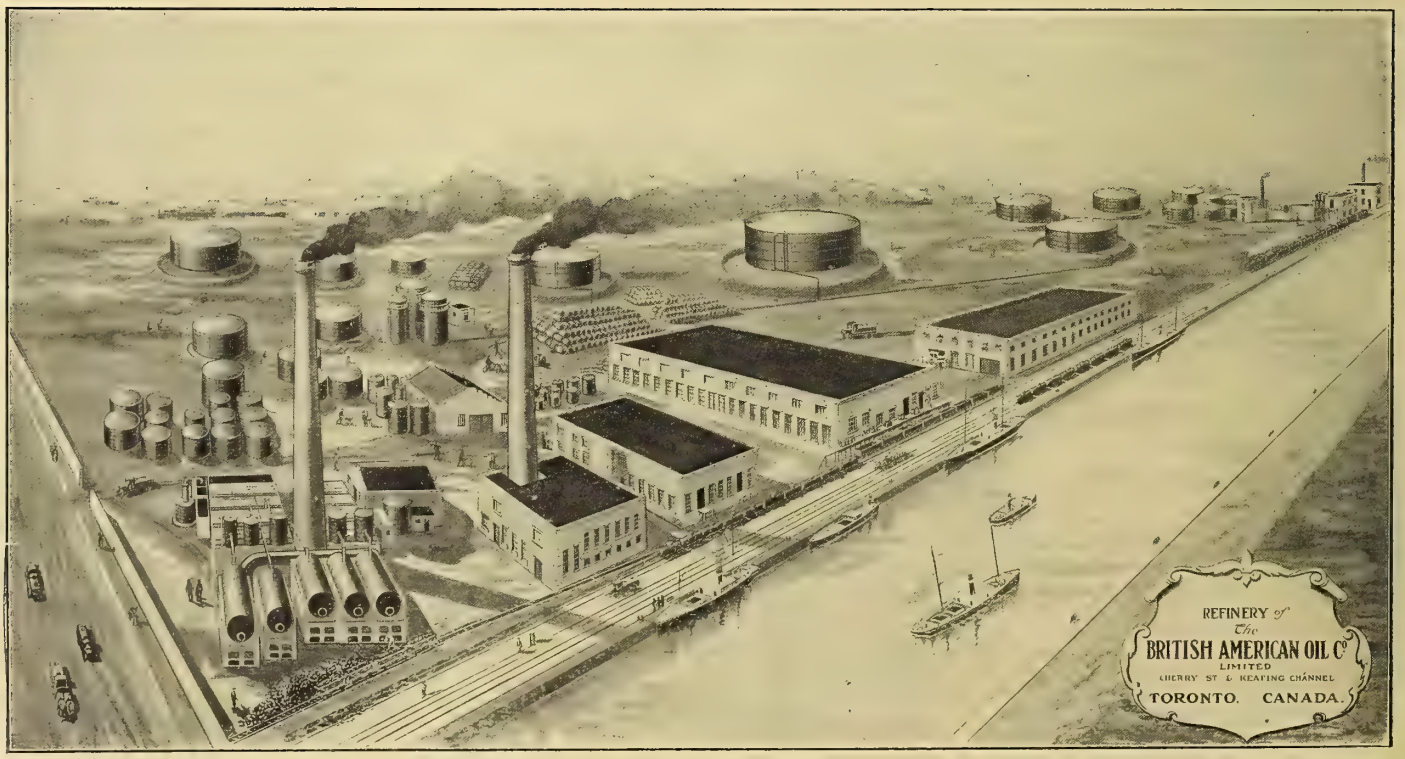
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THE LARGEST COMMERCIAL DROP FORGE PLANT IN CANADA

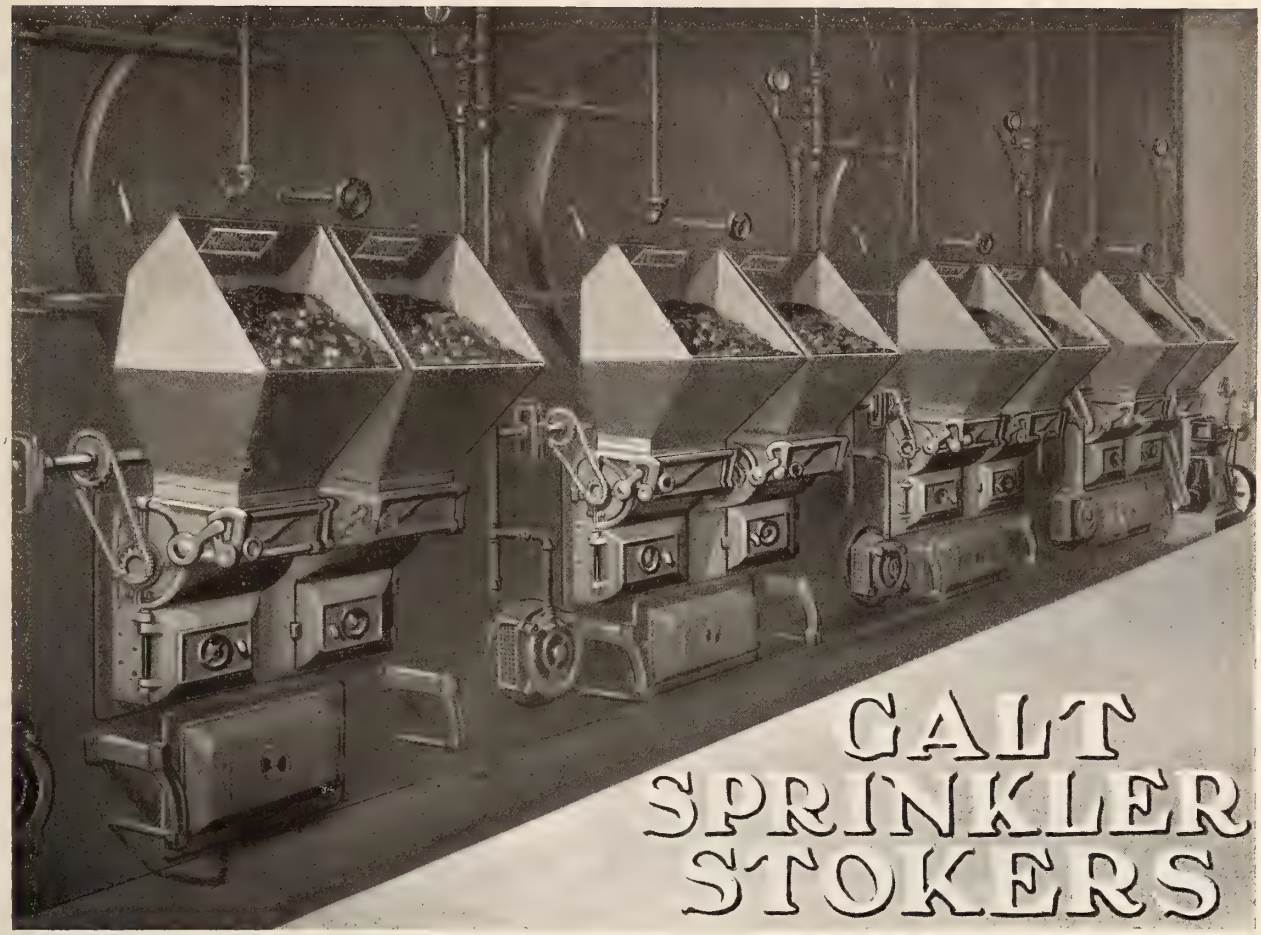
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We stand by our motto: Quality and Service.

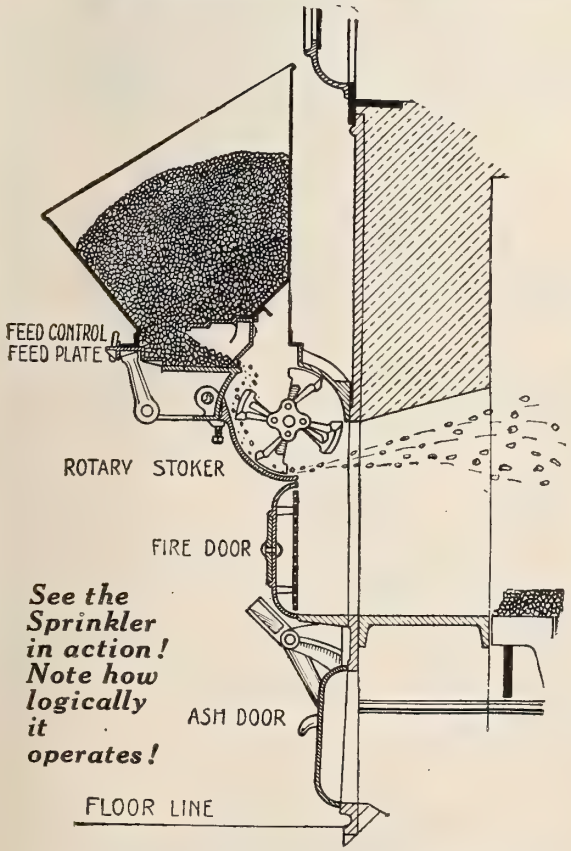
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Walkerville — Toronto, 510 Lumsden Bldg.

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Head Office: ROYAL BANK BUILDING, TORONTO — Branches: Montreal, Ottawa, London, Windsor, Etc.





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" feed the fuel to the furnace with the doors shut.
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" maintain a brilliantly hot fire.
" are simple, strong and beautifully made.

A FEW USERS OF THE GALT STOKER—ASK THEIR OPINION OF IT

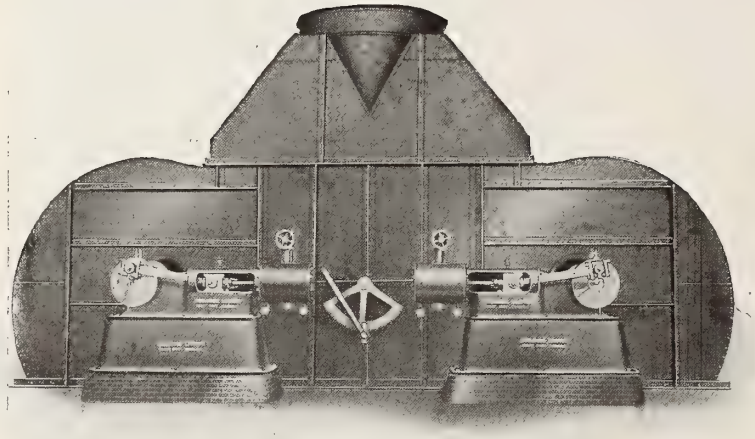
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Board of Education - - Hamilton, Ont.
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Wm. Steele & Sons Co., Architects.

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They are more contented.

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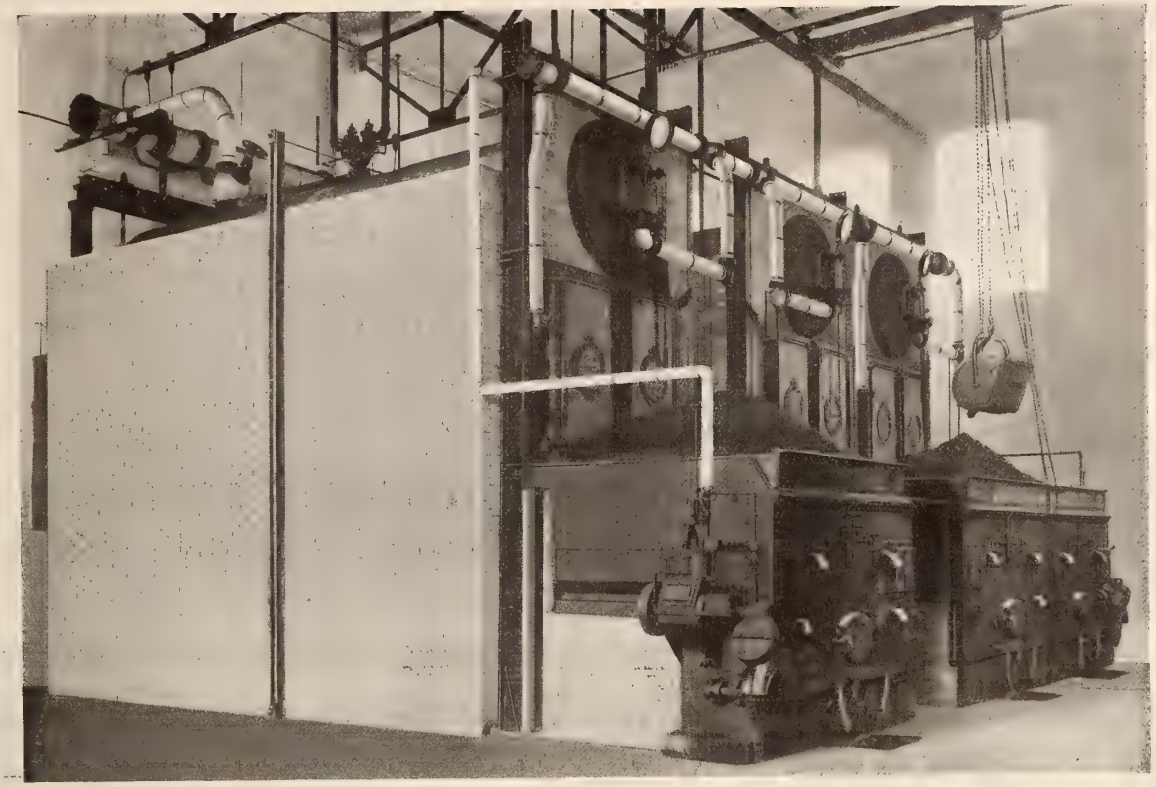
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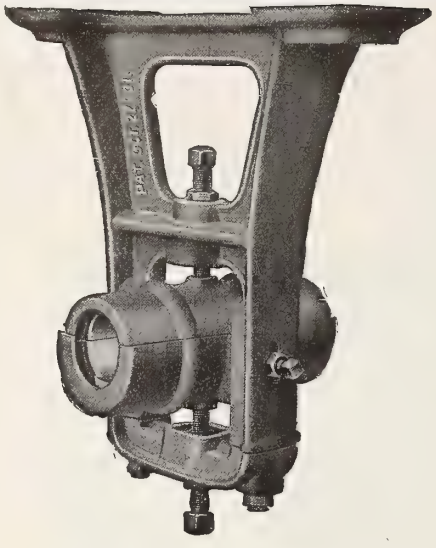
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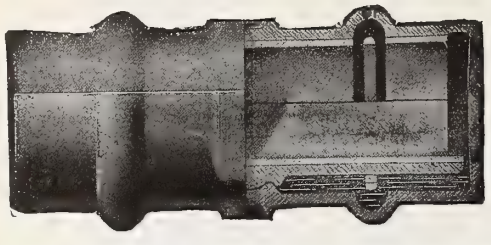
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Ring-Oiling Device



Bond Hangers

Are the Best

Anyone that has used them will tell you that. They cut the danger of hot bearings to a minimum because they are equipped with an up-to-date and efficient ring oiling device that keeps the bearings constantly oiled, without wasting oil. The reservoir once filled requires no attention for at least six months. Any misalignment in the shaft line is easily corrected by the universal adjustment.

Our catalog on Power Appliances is full of pointers. Send for it to-day.

Canadian Bond Hanger & Coupling Co., Limited

ALEXANDRIA - ONTARIO

The JONES Underfeed Stoker

Eliminates all waste of coal---

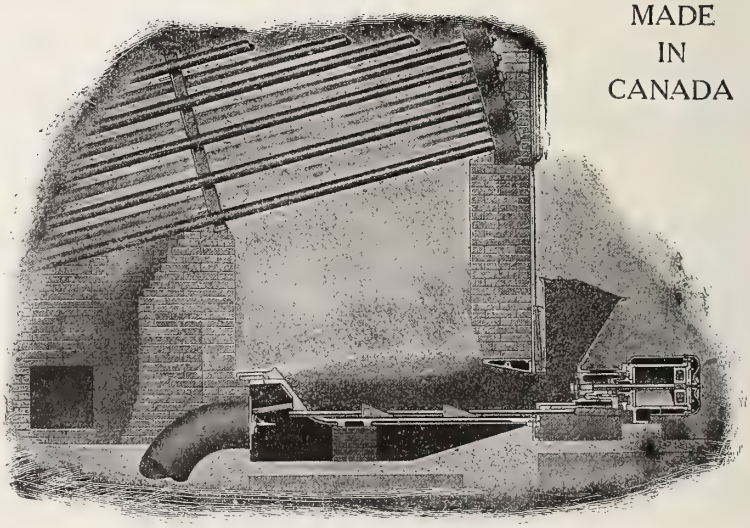
THIS is a broad claim, but one that is fully proved by every JONES UNDERFEED STOKER in use.

And it is due entirely to its scientific design which provides for the automatic control both of coal and air, in a way that results in perfect combustion.

Every heat unit possible to extract from the grade of coal in your bins is utilized when it is fed to the boiler with a JONES UNDERFEED STOKER. No unburned coal in the ashpit, no soot, no smoke—combustion is complete.

You owe it to yourself to investigate. Write us for Descriptive Booklet.

MADE IN CANADA



Jones Underfeed Stoker Co., Limited

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BOILERS



STANDARD RETURN TUBULAR BOILER

We make boilers of all kinds for any service.

We are also sole Canadian makers of Erie City Water Tube Boilers, Vertical and Horizontal.

The large number of pleased and satisfied owners of "INGLIS" Boilers is our best advertisement.

For (52) fifty-two years our boilers have been the standard. We have installations of our different types of boilers, which our representatives will be pleased to show to prospective purchasers. Write us for prices, etc.

INGLIS' PRODUCTS ARE "MADE-IN-CANADA"

The John Inglis Company, Limited

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Ottawa Representative: J. W. ANDERSON, 7 Bank Street Chambers

Grey Iron Castings

HEAVY OR LIGHT

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GARLOCK PACKINGS



Are designed for every class of service where packing is required in power plants and on locomotives and steamships.

They have been the accepted standard of the world for more than thirty years.

In the manufacture of our packings we have steadily insisted upon the best of everything in material, design and workmanship.

All our efforts have been directed toward improving and perfecting our packings to meet the continual increase in steam and hydraulic pressures, due to the wonderful improvements of modern machinery.

Our factories, devoted exclusively to the manufacture of our packings, are the largest, most modern and best equipped in the world, and the locations of our numerous branch factories and stores are such as to afford the greatest advantage in serving our customers promptly.

We are exclusive packing manufacturers—we make nothing else.

The Garlock Packing Company - Hamilton, Ontario

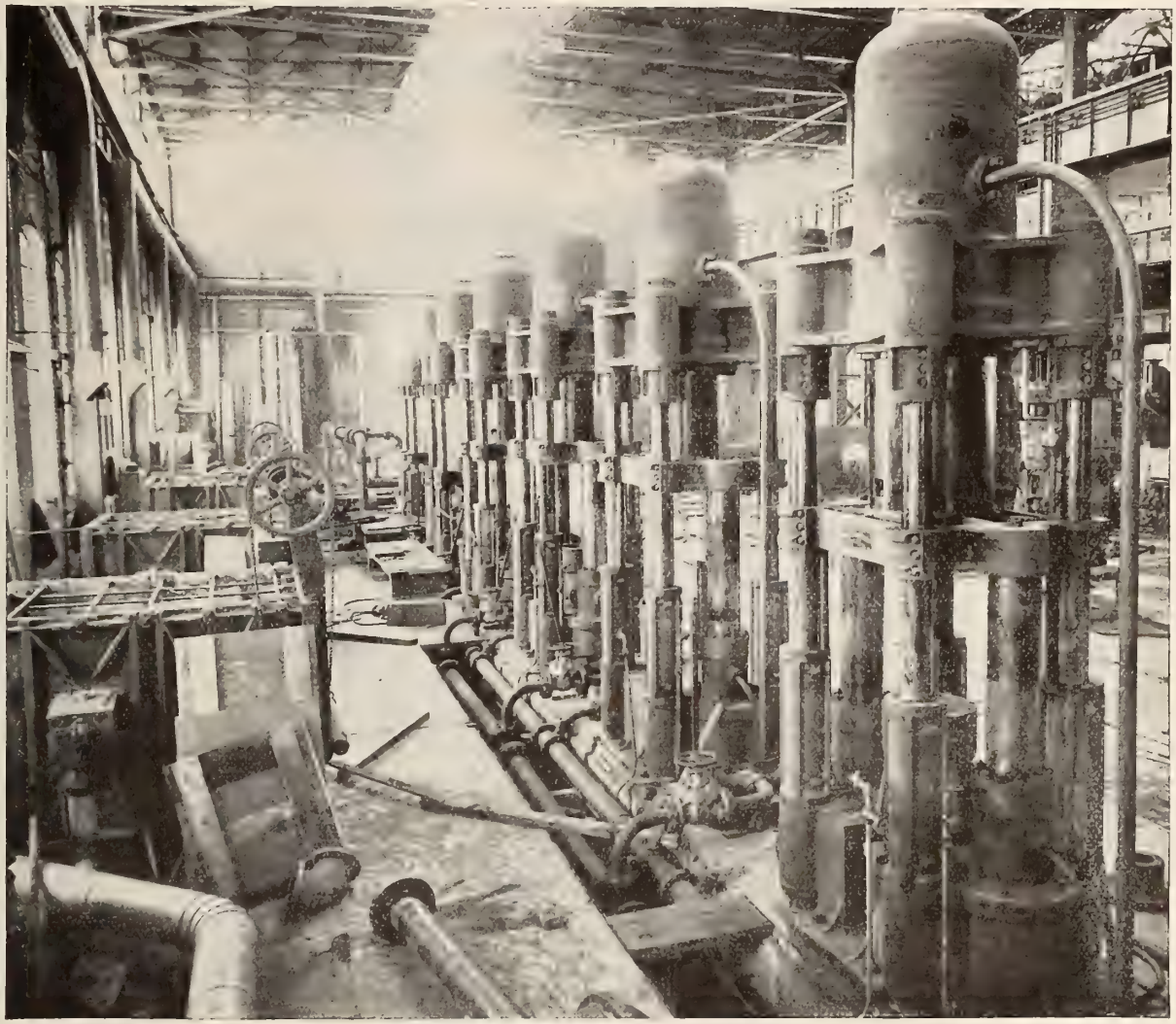


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350-Ton Hydraulic Forging Press, for Six-inch Shells



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HYDRAULIC AND POWER PRESSES, PUMPS, ACCUMULATORS, VALVES AND FITTINGS

Our skilled engineers are at your service to help work out your pressing problems. A good concern to do business with.

THE HYDRAULIC MACHINERY CO.
LIMITED

MONTREAL - - CANADA



46th ANNUAL STATEMENT

of the Result of the Business of the Bank for the Fifteen Months Ending 28th February, 1918

Bank of Hamilton

BOARD OF DIRECTORS:

SIR JOHN HENDRIE, K.C.M.G., C.V.O., President.
CYRUS A. BIRGE, Vice-President.

C. C. DALTON	ROBT. HOBSON	W. E. PHIN
I. PITBLADO, K.C.	J. TURNBULL	W. A. WOOD

J. P. BELL, General Manager.

PROFIT AND LOSS ACCOUNT

Balance at credit of Profit and Loss Account, 30th November, 1916		$209,556.57
Profits for fifteen months ended 28th February, 1918, after deducting charges of management, interest accrued on deposits, rebate on current discounts, and making provision for bad and doubtful debts		598,522.04
		$808,078.61
Appropriated as follows:		
Five Quarterly Dividends at the rate of 12 per cent. per annum	$450,000.00	
Pension Fund, Annual Assessment	$ 12,106.81	
Special Contribution	10,000.00	
	22,106.81	
War Tax on Bank Note Circulation	37,500.00	
Patriotic, Red Cross and Relief Funds	16,050.00	
Bank Premises Account	50,000.00	
	575,656.81	
Balance of Profits carried forward		$232,421.80

Hamilton, 18th March, 1918.

GENERAL STATEMENT

LIABILITIES.

To the Public:

Notes of the Bank in Circulation		$ 5,127,111.00
Deposits not bearing interest	$16,771,669.62	
Deposits bearing interest, including interest accrued to date of statement	36,588,311.42	
		$53,359,981.04
Balances due to other Banks in Canada		44,154.69
Balances due to Banks and Banking Correspondents in the United Kingdom		988.30
Balances due to Banks and Banking Correspondents elsewhere than in Canada and the United Kingdom		1,191,407.61
Acceptances under Letters of Credit		194,917.27
		$59,918,559.91

To the Shareholders:

Capital Stock paid in		3,000,000.00
Reserve Fund	$3,300,000.00	
Balance of Profits carried forward	232,421.80	
	$3,532,421.80	
Dividend No. 115, payable 1st March, 1918	90,000.00	
Former Dividends unclaimed	699.00	
		3,623,120.80
		$66,541,680.71

ASSETS.

Current Coin	$ 901,257.15
Dominion Government Notes	6,024,951.00
Deposit in Central Gold Reserves	2,500,000.00
Deposit with the Minister of Finance for the purposes of the Circulation Fund	157,000.00
Notes of other Banks	389,297.00
Cheques on other Banks	1,846,132.58
Balances due by other Banks in Canada	338,559.07
Balances due by Banks and Banking Correspondents elsewhere than in Canada	1,059,602.77
	$13,216,799.57
Dominion and Provincial Government Securities, not exceeding market value	3,295,775.32
Canadian Municipal Securities, and British, Foreign and Colonial Public Securities other than Canadian	7,541,280.23
Railway and other Bonds, Debentures and Stocks, not exceeding market value	674,841.02
Call and Short Loans (not exceeding thirty days) in Canada, on Bonds, Debentures and Stocks	3,487,456.12
Call and Short Loans (not exceeding thirty days) elsewhere than in Canada	1,400,000.00
	$29,616,152.26
Other Current Loans and Discounts in Canada (less rebate of interest)	33,134,198.55
Other Current Loans and Discounts elsewhere than in Canada (less rebate of interest)	575,196,00
Real Estate other than Bank Premises	407,628.84
Overdue Debts, estimated loss provided for	175,542.30
Bank Premises, at not more than cost, less amounts written off	2,145,455.13
Other Assets not included in the foregoing	292,590.36
Liabilities of Customers under Letters of Credit as per contra	194,917.27
	$66,541,680.71

JOHN S. HENDRIE, President.

J. P. BELL, General Manager.

AUDITORS' REPORT

In accordance with the provisions of Sub-sections 19 and 20 of Section 56 of the Bank Act, we report to the Shareholders as follows:

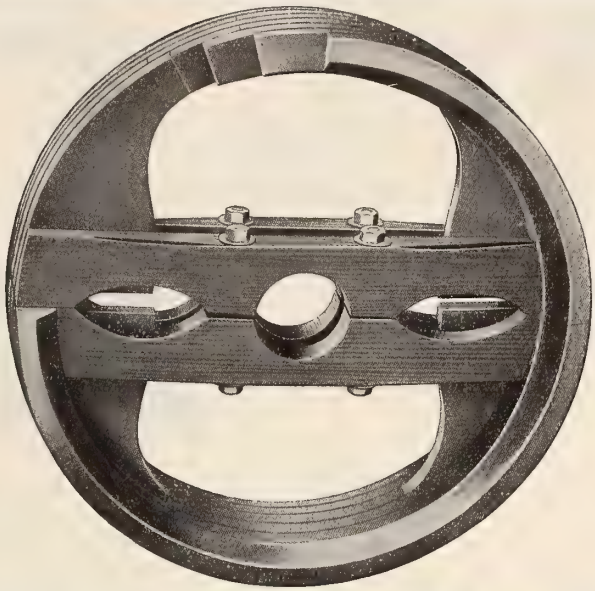
We have examined the above Balance Sheet with the books and vouchers at Head Office, and with the certified returns from the Branches, and we have obtained all the information and explanations we have required, and in our opinion the transactions which have come under our notice have been within the powers of the Bank.

We have checked the cash and verified the securities of the Bank at the Chief Office and at several of the principal Branches during the fifteen months covered by this statement, as well as on February 28th, 1918, and have found that they agreed with the entries in the books of the Bank with regard thereto.

In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Bank's affairs according to the best of our information and the explanations given us, and as shown by the books of the Bank.

C. S. SCOTT, E. S. READ, } Chartered Accountants. Auditors.

Hamilton, 18th March, 1918.



FAIRBANKS-MORSE TRANSMISSION MATERIAL

Fairbanks Wood Split Pulley

The *Rim* is of thoroughly seasoned basswood. This gives the best belt surface. The *Arms and Rim* are reinforced by sectors which form the strongest possible joint. The Fairbanks Wood Split Pulley is recognized everywhere as being the best designed and most carefully built wood split pulley on the market.

Graton & Knight Standardized Leather Belting

Belting requirements fall into a small number of classes. There is a Graton & Knight Standardized leather belt scientifically built for each of these classes. Graton & Knight leather belting stands pre-eminent for grip, pliability, permanence of shape and length of service.

Steel Shafting, Ball Bearing Hangers, Steel Pulleys

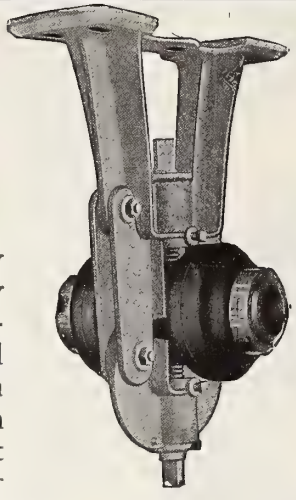
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The Canadian Fairbanks-Morse Co., Limited

"Canada's Departmental House for Mechanical Goods"

ST. JOHN QUEBEC MONTREAL OTTAWA TORONTO HAMILTON WINDSOR WINNIPEG
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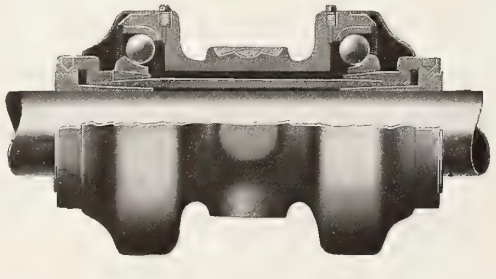


You have probably invested in Victory Bonds, and contributed to the Red Cross. Perhaps you are economizing in many ways also; but there is still another way to help—save power.

Chapman Double Ball Bearings

save 20 per cent. of power by eliminating friction. If you are wasting power in transmission, you are wasting coal—one of the articles the Government requests us to conserve.

It is not necessary to shut down your plant to install Chapman Bearings. They are interchangeable with self-oiling bearings of the same shaft size, and power is not the only thing they save.



Let Us Tell You More About Them

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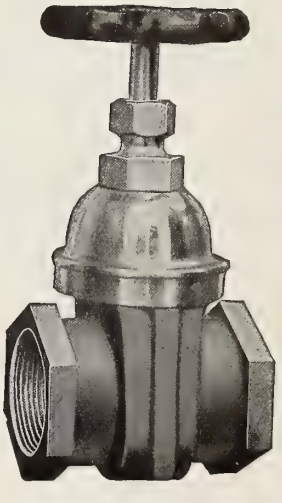
MUELLER

GLOBE AND ANGLE VALVES

Globe and Angle Valves, with an even thickness of metal throughout; valves that can be repacked under pressure both open and closed. The pipe threads are full length. The valves contain full sized water ways, and are cast from steam metal of our own special formula.

MUELLER Globe and Angle Valves are compact and embody all the most practical and desirable features. These are positively the highest grade valves on the market to-day.

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HERE IS A

Brass Gate Valve

You will find it always made from HighGradeSteam Metal and beautifully finished.

They are not made of one quality this year and another next. Always reliable and worth the price you pay.

The Kerr Engine Co., Limited
VALVE SPECIALISTS
WALKERVILLE - ONTARIO



Canadian Carbide

Made in Canada

SOLD THE WORLD OVER

Second to None in

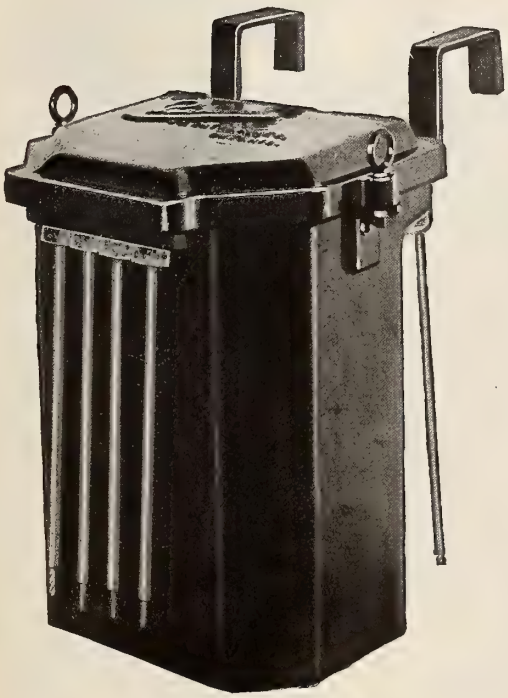
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MONTREAL - CANADA

Oxy-Acetylene Welding Reduces Manufacturing Costs



Welded Transformer Case
Courtesy : Packard Electric Co

For all purposes involving the joining of metals, Oxy-Acetylene Welding is becoming more and more generally adopted because of its greater efficiency and economy. The Welded Joint is invariably absolutely leak-proof and of practically equal strength to the metal adjacent, without unsightly rivets or seams to depreciate the finished appearance of the manufactured article.

AN OXY-ACETYLENE WELDING OUTFIT
is an indispensable part of the Equipment
OF EVERY PLANT

Being always at hand to immediately reclaim broken parts of machinery, etc., the savings it effects are incomparably greater than its cost, and completely avoids the long delays waiting for replacements.

L'AIR LIQUIDE SOCIETY
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Let Two Men Do Something Else

UNDER present conditions the manufacturer must employ every available means to boost production and reduce expenses. The labor question is no longer a "coming event." It is here and must be looked squarely in the face.

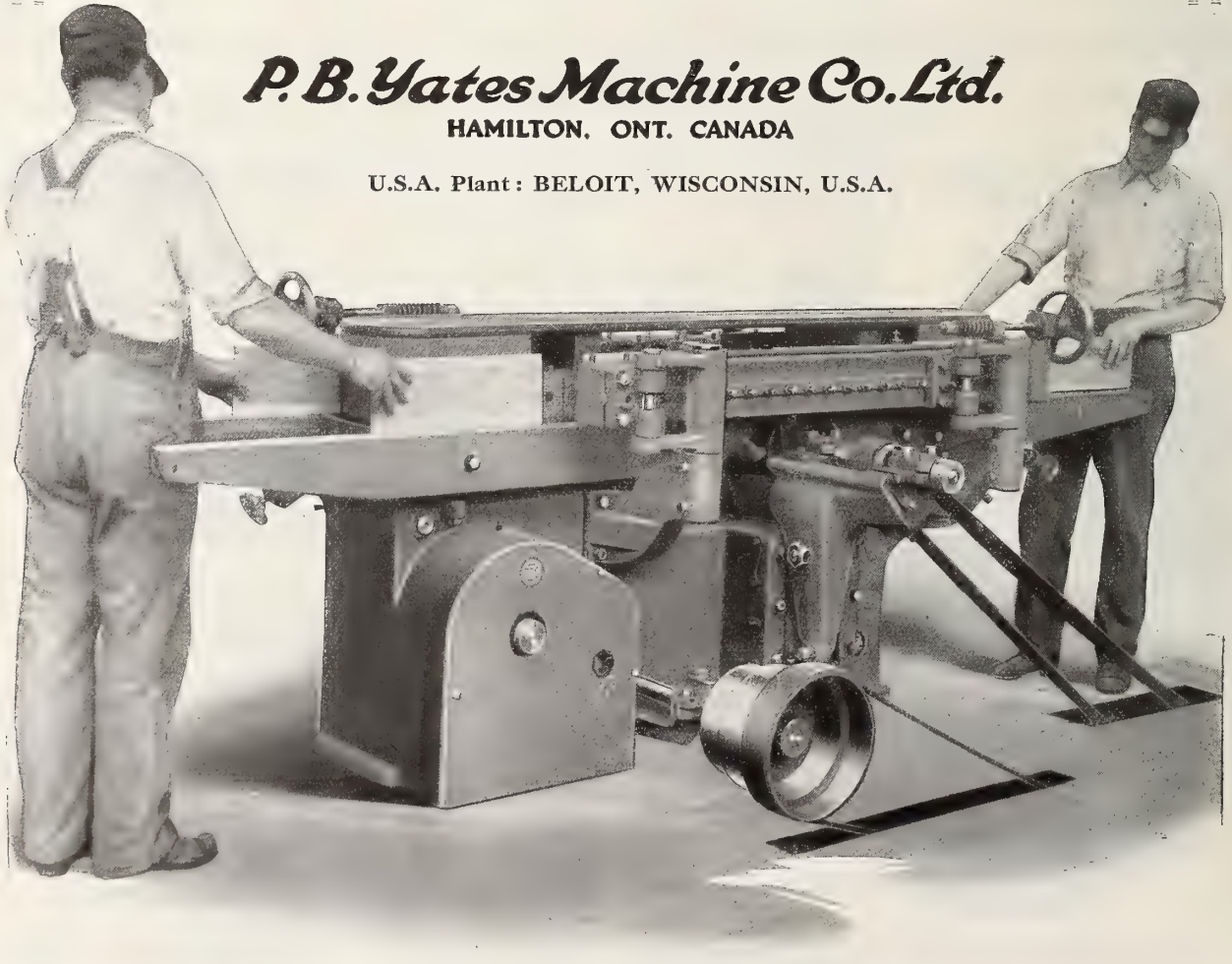
The Yates 213 Glue Jointer

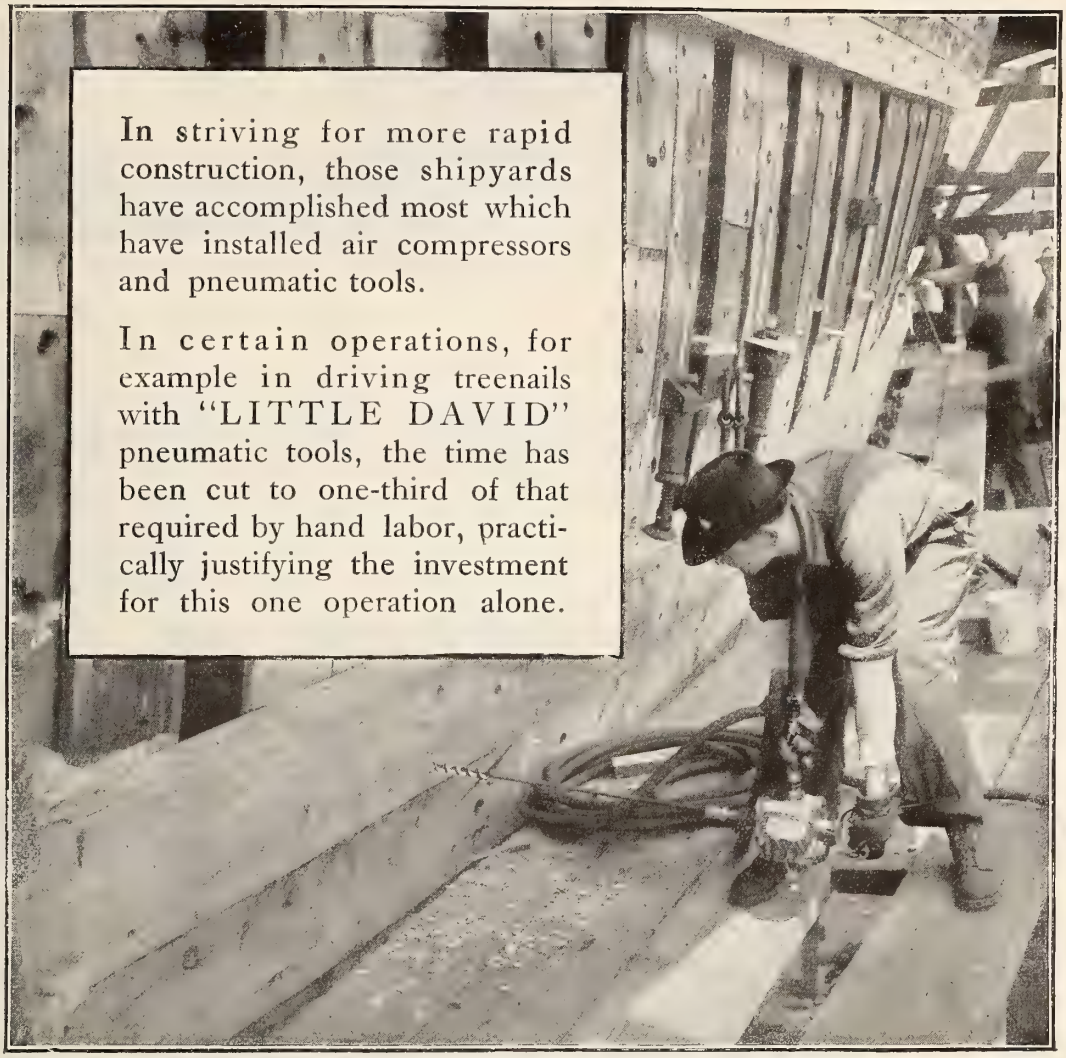
is one of the best means available for cutting down cost and increasing output. It does the work of eight men. Only two men are necessary to operate it. The work is perfect. The machine itself is strongly built, and will stand constant use for many years.

You can't go wrong on the 213. It's "there with the goods." Write to-day, to

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HAMILTON, ONT. CANADA

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"LITTLE DAVID" in Wooden Shipbuilding

Our "LITTLE DAVID" tools for wooden shipbuilding include wood borers, treenail drivers, tools for driving spikes and the smaller bolts, portable saws and portable grinders.

We have also a heavy drift bolt driver for the largest sizes of drift bolts used in ship, dock or mill construction.

We have many "LITTLE DAVID" tools for steel shipbuilding also, including riveting hammers, chippers, caulkers, drills, reamers, grinders, etc. Let us send you information.

Canadian Ingersoll-Rand Co., Limited

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NAMCO

Screw Machine Products



TANDARD sizes and threads, CAP and SET SCREWS, PLAIN and CASTELLATED NUTS IN STOCK.

Special Screw Machine Work "made to specifications" from Iron, Steel and Brass Bars, in sizes up to $2\frac{1}{4}$" diameter and $10\frac{1}{2}$" long.

Quotations on your samples or blue prints.

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DE COURCELLES & G.T.R.R. MONTREAL CANADA

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Trade Mark Registered

20" Engine Lathe

with

Quick Change Gears

Modern high speed tool of great strength and accuracy

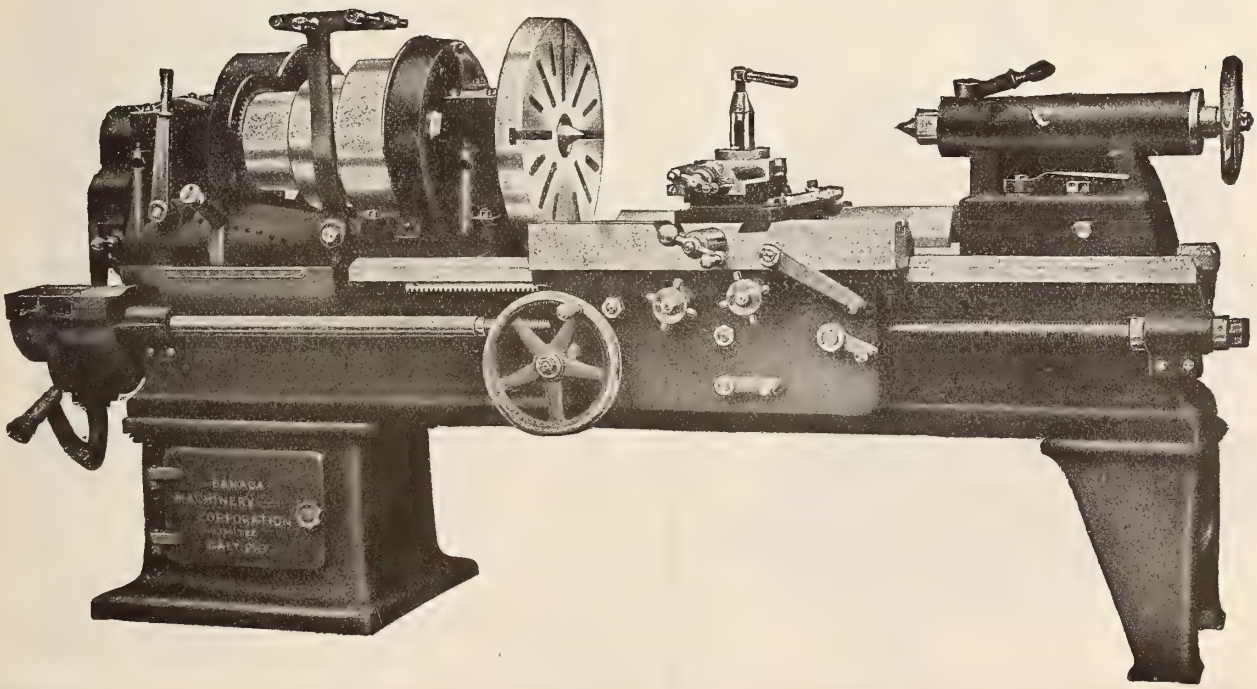
Full specifications and description are contained in our special bulletin No. 10010 which will be mailed to you upon request.

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whether you use it or not. If you buy a cheap wire whose quality is kept down to meet a price instead of up to meet a standard, you may pay several times the cost of good wire in replacement of your wiring or the building in which it is installed.

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is kept up to a high standard of dependability and is sold at a reasonable price that makes it available for the cheaper class of buildings. It has always exceeded the requirements of the N. E. C. by a liberal margin, which constitutes the purchaser's insurance against the defective wire risk.

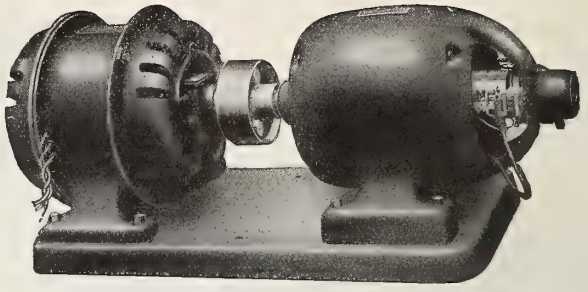
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Motor Generators and all Electrical Machinery

Write for prices and send your repairs to

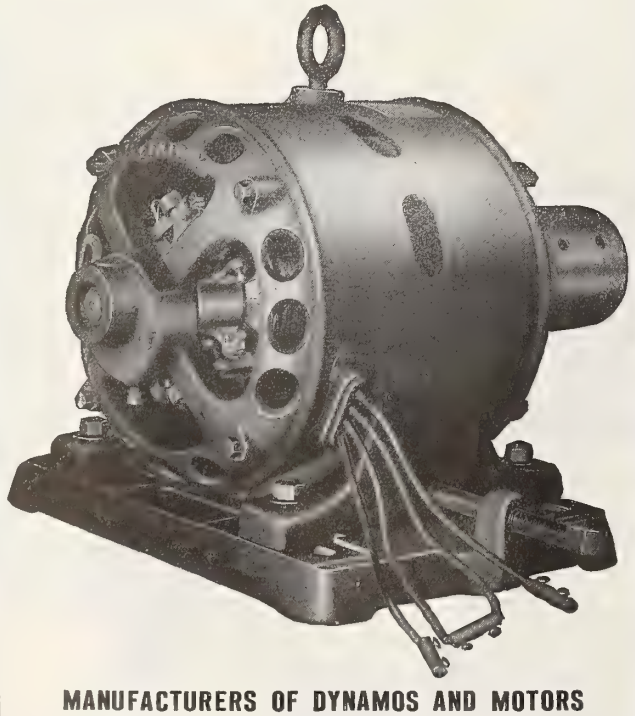
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Canadian Hart Wheels

CUT FASTER LAST LONGER

Than any other wheels on the market

Tell us the service you want performed and we will supply you with an abraser that will save you time, money and worry.

Send for one of our catalogues and tell us your troubles. We do the rest. :: :: :: :: ::

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Are You Sure Your Electrical Wiring is Safe?

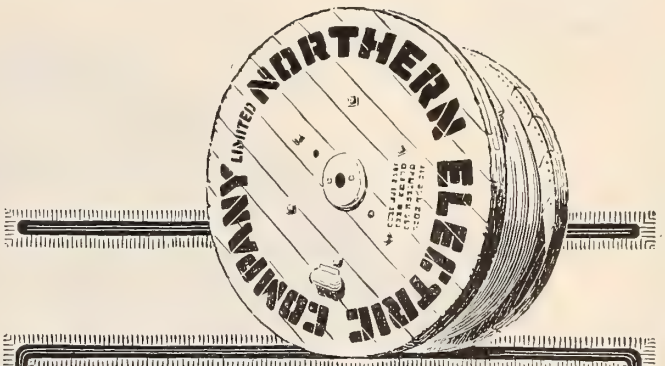
There is but one absolutely safe method of wiring. Install a CONDUIT SYSTEM — it will eliminate all risk of Fire.

"Galvaduct" & "Loricated" "Conduits"

HAVE NO EQUALS

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THE BEST-KNOWN CABLE REEL IN CANADA

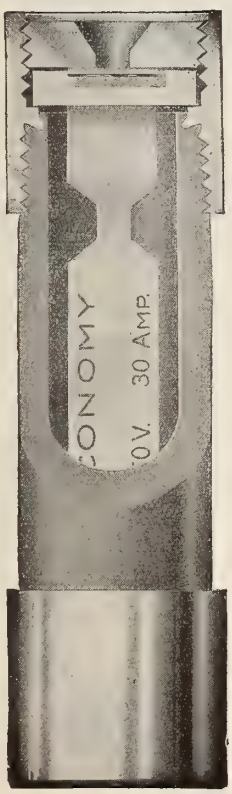
In Halifax or Vancouver, whether on the public thoroughfares of our larger cities or smaller towns, wherever there is a cable installation in progress, the reels invariably bear the name of the Northern Electric Company, Limited.

The installation may be overhead, underground or submarine. It may be for a Telephone Company, a Telegraph Company, a Railroad Company or for a street lighting system.

The quality, both of the product and the service, is largely the reason for the universal demand for Wires and Cables of Northern Electric manufacture

Northern Electric Company
LIMITED

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Each Time You Renew an ECONOMY RENEWABLE FUSE

with a

"DROP OUT" RENEWAL LINK

you will renew your gratification over cutting your annual fuse maintenance costs 80%

CONSERVE your fuse money. It is unpatriotic, as well as bad buying policy, to use a dollar's worth of material for what could as well be accomplished with twenty cents' worth.

In all branches of industry—in modern homes, institutions, public buildings—billions of dollars' worth of equipment and property are protected against the fire and accident hazards of overloads and short circuits through the fusing of a million circuits with Economy renewable Fuses and "Drop Out" Renewal Links.

Write for Catalog 40

ECONOMY FUSE & MFG. CO. OF CANADA, Ltd.

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Manufacturers in Canada of "S & C" High Potential Fuses—to 15,000 volts.

Sole Manufacturers of "ARKLESS"—the Non-Renewable Fuse with the "100% Guaranteed Indicator"



Speed up with Electric Power

C-G-E Motors and Control increase production and reduce maintenance.

The illustration on the right shows 19 C-G-E Motors, each 175 H.P., driving tube mills in a cement plant. On the left is shown a 50 H.P. C-G-E Motor in a rubber plant.

These are some of the ways in which modern industry has been speeded up by putting electric power to work in the right place.

The engineering problems solved in putting electric power to work in these and other industries were many and intricate. Production of electrical equipment suited to this work and in quantities required is an important part of this company's service to Canadian industries.

Any problem involving the use of power can be simplified by the application of electricity. The Canadian General Electric Company is well equipped to lend valuable assistance in working out such problems and is glad to co-operate with contractors, manufacturers and engineers in every possible way.

C-G-E Motor Drive

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LIMITED

Head Office: Toronto. Sales Offices: Montreal, Halifax, Sydney, Ottawa, Cobalt, South Porcupine, London Winnipeg, Calgary, Edmonton, Nelson and Vancouver



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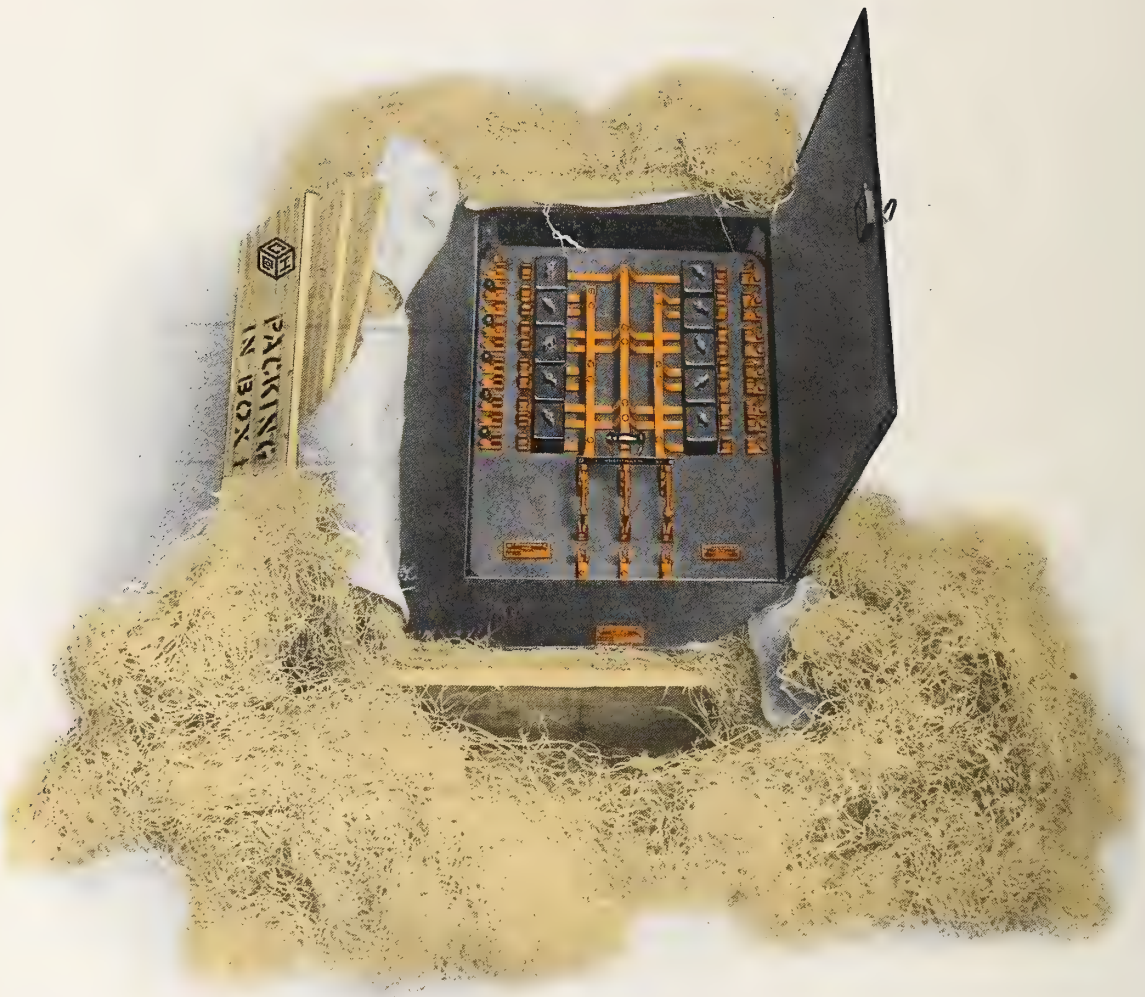
The above group of Catalogues bear witness as to our ability to serve, and to satisfy.

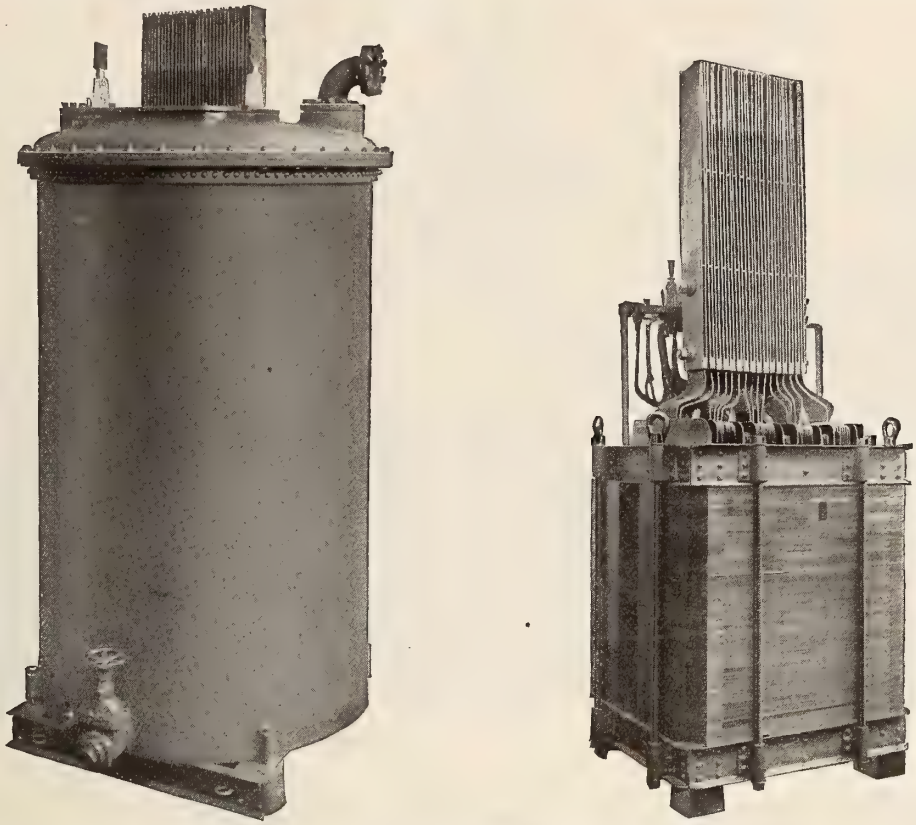
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CANADA'S LEADING PRINTERS

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6000 Kva.—163 Volt, Single Phase, 25 Cycle Transformer

Westinghouse

Electric Furnace Transformers

Built to withstand the rapid fluctuations in current; the heavy surges, met with in electric furnace operation. They stand up under the severest jolts.

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VANCOUVER Bank of Ottawa Bldg.

Made in Canada



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Treated with "Tarvia-B" in 1914 and 1917.

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INDUSTRIAL CANADA

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Manufacturers and Production

CANADIANS are being urged, nay implored, to spare no effort to increase the production of foodstuffs during the coming season. Tremendous issues are at stake and much will depend on the supply of food that can be made available for export within the next five or six months. Apart from the appeal to manufacturers to allow as many of their hands as possible to go on the land and give much-needed assistance to the farmers, there is the call for them to assist and encourage their employees to produce at home. Something might be done in the way of providing land and facilities for its cultivation. Help might be rendered in the direction of expert advice so that the work may be performed with the greatest possible degree of effectiveness. And, above all, the urgency of the matter might be emphasized in various ways with a view to having as many as possible undertake the work.

Viewed from another angle, the manufacturers must vindicate the adoption of daylight saving. This measure was enacted very largely for the purpose of giving office and factory workers a chance to do more and better work in food production. The demand for the extra hour of daylight came rather from this quarter than from the farming community. The farmers in many cases raised objections and were inclined to belittle what could be achieved by the city dwellers. Under these circumstances it becomes all the more important that the production of the men of office and factory should be so great that the result will justify the means taken to bring it about.

Electric Heating

IT will doubtless come as a surprise to many of our readers that, in the opinion of so able an engineer as Mr. Arthur V. White, of the Conservation Commission, the application of hydro-electric energy in the production of heat is a very much exaggerated possibility. We have for a long time had a sort of complacent feeling that sooner or later means would be devised for the economic utilization of the electric current in heating houses. The fear that the coal supply would be exhausted within a certain number of years was offset by the belief that long before that time, we would have become quite independent of coal. Mr. White, of course, does not say that eventually means will not be found to produce a suitable substitute for coal. His point is that we cannot rely on our water powers to do the trick. They will be adequate for power purposes, but not for heating purposes; and, till some other source of electric energy is discovered, we must do our best with the present arrangements.

Wine Measure Declared Illegal

THE attention of manufacturers is directed to a ruling by the Canadian Inland Revenue authorities, making the use of the United States liquid measure illegal in Canadian trade.

The United States gallon is approximately 20 per cent. smaller than the Dominion gallon; more exactly, the imperial gallon in use in Canada is equal to 1.2009 United States gallons. Many complaints have been made in Canada as to the sale of bottled and tinned goods, such as ink, essences, condiments and paints, put up by American houses according to the United States or wine measure unit. American goods measured by the smaller unit have an unfair advantage over similar Canadian goods.

The sale of anything in Canada by wine measure has, therefore, been declared illegal. Also, the offering for sale

of any goods of which the contents are clearly marked in some unit of United States measure: that is, "1 pint U.S.A. Standard" is illegal, and representing unmarked containers of goods as pints, quarts, etc., when their contents are actually United States measure (wine measure), is illegal. Goods in packages and containers may be put up and sold without any reference to the measure of the contents, or the contents may be indicated by weight in pounds or ounces, but if any reference whatsoever is made to the contents by measure it must be in Dominion measure only.

The Weights and Measures Act of Canada prescribes the use of certain Dominion weights and measures, or the metric system, in all dealing in Canada. Fines are provided for selling goods according to any standard other than those which have been stated.

Export Trade

WAR orders are very different from export orders. War orders have been thrust upon us, and we have been commanded to use every ounce of energy that we have to increase our production and give the armies at the front all they need.

But we shall not have export orders thrust upon us; they will not fall from the skies. We shall have to dig for them. Thus, the whole key to the situation after the war lies in organization. If we do not organize we shall surely fail. Disregard the warning if we will, but the business man who is caught napping is going to miss golden opportunities. War or no war, opportunity will knock at the door of every manufacturer in the community. But it may knock only once in a place, so let us not be indifferent.

In the United States over a year ago a number of the leading bankers and business men of the Eastern States came together and organized the American International Corporation, with a subscribed capital of fifty million dollars, of which one-half was paid up. Can we imagine what a tower of strength to the United States export trade this Association is? When they required ships to take their foods to South America and were handicapped by the high rates of shipping, the Association bought four ships and paid four millions of dollars for them. The first annual statement showed a profit of nearly twenty per cent. in paid-up capital in the first year of operation.

What are the manufacturers of Canada doing in a similar direction? We constantly hear of great post-war preparedness in Great Britain and vast schemes in progress in Germany to catch the world's trade, but in Canada, with our boundless resources, we must confess we have not developed the mental avidity which is the necessary accompaniment of vigorous and overmastering action.

There is, indeed, a general complaint, officially recognized, that Canadian concerns do not reply promptly to correspondence, and when they do their replies are in general so vague that nothing can be concluded. Buyers, as a rule, cannot afford to keep on writing and cabling before getting an understandable offer. Thus business which Canada might handle goes to the United States. For instance, a correspondent in Italy, a great friend of Canadians, some time ago, wrote to six United States concerns; none of the six was in a position to supply, but all replied that they were sorry, and that they would be glad if the correspondent would keep in touch. Experience is that Canadian concerns would not likely write in these terms.

The business correspondent in question adds: "I am telling you all this because I wish to do business in Canada; I would rather pass orders to Canada than to the United States, but Canada must meet me by quoting their goods in an intelligent manner, by replying to correspondence, and, in fact, by trying to do all they can to induce the purchaser to take the goods."

This indifference on the part of Canadian manufacturers with foreign correspondents is a serious drawback. A good deal of the difficulty, no doubt, comes from the fact that Canadian firms are not used to export, nor to dealing on a large scale, with all the attendant business of shipping, packing, etc. It has been found that it is generally more convenient for a foreign buyer to put his Canadian enquiries through a London merchant who is equipped to attend to all the details, and also to finance the shipment to c.i.f. In this connection, a member of the Canadian Trade Commission to Europe in 1916, bears testimony to the fact that the complaints of delay in answering, or the total ignoring of correspondence from writers in foreign countries by Canadian manufacturers were very general. If Canadian manufacturers desire to cultivate foreign trade, and even a reputation for business courtesy, they must be prepared to reply to enquiries for their products presented to them. For how long is the foolish inertia to last? It comes back to this one thought. We can only succeed through united action. If the Canadian manufacturer has faith in himself and is prepared to give his hearty co-operation in solving the problem of Canadian export trade, the question which is of the greatest importance to Canada next to winning the war, he will, without fail, reap from the harvest of new trade, conditions which are rich in possibilities for the future.

Embargoes

THE Canadian Railway Association for National Defence has issued an interesting bulletin explaining the use of embargoes in preventing railway congestion. After giving a technical explanation of why it is necessary at times to establish embargoes, the bulletin goes on to say that four or five years ago a general embargo on Canadian freight movement was almost unknown, while even the special or local embargo was a rarity.

"In the United States the same may be said, except that American experience with general embargoes began earlier than Canada's and is to-day infinitely more trying to the patience and pockets of all concerned. The cause in the United States is the same as the cause in Canada.

Traffic has been growing—especially in the United States—faster than railway facilities. Increasing railway facilities in the United States has been an extraordinarily difficult matter for the past five years. This has been due there to the inability of the roads to raise funds for the work except at exorbitant figures. Railway securities in the United States have been in bad odor for some time. The conflict between State and Federal Control has hampered and harassed the roads to an extraordinary degree and reacted through their securities against their capacity for extending as business extended. Canada, under simpler and wiser railroad policy, has been able to preserve a better reputation for her railway securities. Lack of extension has been due here to labor shortage, and shortage of material since the war began.

"The embargo is sometimes regarded by the shipper or consignee as an invention of the Evil One designed expressly to annoy business men. In some quarters there is apparently a tendency to believe that the railroad companies like to put on embargoes. While, of course, such is not the case, for obvious reasons, and the careless or unnecessary use of embargoes used to help out inefficient railroad operation is quickly detected and punished—all embargoes issued by Canadian railways are now issued through the office of the Canadian Railway War Board. In each and every case the public may feel assured that the need for the embargo is carefully examined and the embargo allowed only upon the best of reasons.

"General embargoes are often the result of conditions beyond the control of the Canadian railway. For example, there was a blockade at Toledo, Ohio, not long ago, which prevented Canadian "empties" finding their way to Canada through the Detroit-Windsor gateway. After lasting a certain time this blockade had the effect of forcing these Canadian cars to the Niagara gateway in order that the American roads might thus be relieved. In a very few days the Canadian roads were compelled to place an embargo on movement across the Niagara frontier so as to save that gateway from becoming obstructed. When the trouble at Toledo was removed traffic soon resumed its normal movement.

"Of course breakdown in operating conditions has sometimes to be met with embargoes on traffic moving over certain lines, but in this case there is every incentive on the part of the railway to avoid such conditions or to remedy them with maximum speed. On the other hand, embargoes directed against a special consignee, are likely to be due to conditions which the consignee, like the railway, could not help. Many consignees have been unable to expand their unloading facilities as rapidly as their business has grown. Lack of labor and material here militates against even the best intentioned citizen. The placing of an embargo on consignments to this man is as much a measure of protection for him as for the railways and the general public.

"Sometimes embargoes are made necessary through some accident or oversight in the relations between shipper and consignee. In one instance, for example, 'Jones' had ordered one hundred cars of coal for delivery that summer. The mines, not being busy at that time, loaded all the cars at once and started them on their way. Fortunately, the railway company, observing that the consignee had unloading facilities for only five cars, was able, through a temporary embargo, to hold back the other 95 until the unloading space of the consignee was free for another five. Had the entire number come through at one time the local yards of the railway would have been hopelessly fouled by these extra and unnecessary (at the time) cars.

"Unloading has a great deal more to do with traffic delay and embargoes than might be generally supposed. For example, the team tracks at X have a capacity of 300 cars per day—that is, 300 can be unloaded there in one day. But in actual practice the average rate of unloading at X team tracks is only 50 cars per day. Therefore *fifty* cars per day is the capacity of those team tracks. The balance of its capacity is practically 'storage.'

"The embargo is a bitter medicine, unpopular to all who taste it, not excluding the railway."

A Blow at the Agricultural Implement Industry

THE progress of agriculture is not more dependent on the industry of the farmer than on the skill and inventiveness of the farm implement manufacturer. What we need, however, is not hysteria; not a manifestation of a willingness to wipe out normal conditions, but, so far as we can, to observe normal conditions, to give the industries of the country and the employment of those not called to arms, the opportunity for work, for production, for sale. Our efforts should be to observe the normal, not to destroy it.

In striking contrast to this elemental proposition was the action of the Dominion Government in its issue of a pre-emptory Order-in-Council, for the period of one year, from 7th February, 1918, admitting, duty free, tractor engines, costing not more than $1,400 in the country of production. The reason stated by the Government for this action was the necessity for increased food production, but it is a fact that the Government in purchasing one thousand Ford tractors, at the price of $740 each, did not even inquire as to the possibility of obtaining suitable tractors of Canadian manufacture.

The past achievements of Canadian manufacturers were proof of their capacity to meet an emergency. In factory and field the adaptability and power to perform are now established characteristics of the Canadian people. This hasty governmental action exhibits a spirit of thoughtlessness amounting to a total disregard of Canadian industrial institutions. Besides striking a paralyzing blow at the agricultural implement industry, the action of the authorities, if pursued, would have had the further regrettable effect of lessening the market for the products of Canadian iron and steel mills. It should be noted that the importers of United States tractors have no investments

in Canada beyond the tractors imported, while the Canadian manufacturers have a large investment.

One Canadian company alone which started manufacturing tractors six years ago, has an actual investment in plant of four and a half million dollars, with a possible producing capacity of 2000 tractors per annum, subject to accessibility of material and labor. Other Canadian companies have large organized plants liberally financed, which have behind them a not less enterprising and ambitious management.

Under these circumstances, it is obvious that unless serious consideration is given to this industry by the Government, it will be impossible to maintain it, and what is now a very promising industry in Canada may be wiped out.

Aside from ordinary considerations of sound domestic policy, the Government before buying the Ford tractors should have investigated the Canadian tractor manufacturers in order to ascertain if satisfactory arrangements could not be made so that this large expenditure should not unnecessarily swell Canada's adverse trade balance with the United States under present difficulties of exchange. It should be remembered as a further ground for unpreparedness by the manufacturers for such a change, that during the recent campaign members of the Union Government stated that there would be no revision of the tariff until after the war. The tractor manufacturers, as large tax payers, were entitled to be consulted in order to determine how this industry could be maintained if tractors from the United States were admitted free of duty. It must not be overlooked that materials needed for the Canadian industry, if imported, are subject to substantial customs duties, and owing to embargoes and other conditions, if produced in Canada, are obtainable only at higher prices than apply on like materials produced by United States tractor manufacturers under the prices fixed by that Government. We must, of course, increase production, not on farm only, but in factory and workshop. In other words, we must make Canada self-contained.

At present we believe that the farming industry is the only industry that is guaranteed a high selling price for its products. The removal of customs duties on supplies or apparatus used in farming simply releases the farmer, while receiving highly profitable prices for his products, from paying anything like his share towards the revenues which the Government must obtain—thus making the taxation apply totally disproportionately against the manufacturer and business man.

All the pleas and pretexts of free trade have gone down under the strain of war. "How not to do it" was the taunt of Dickens, and Great Britain has painfully found out "how not" to help the farmer, while the German policy encouraged the farmer to do his utmost, whether in the year of the fat or of the lean kine. Any course of action which menaces one industry cannot fail ultimately to prejudice the very industry it is sought to favor.

Great Britain's steel walls of to-day, like her wooden walls of long ago, were built in British dockyards, made of British materials, shaped by British hands. They are not the children of free trade; they are the offspring of protection. Farmers, manufacturers and merchants might be sacrificed to the new political economy, but the navy wanted the best work and the best workmen the home country could furnish. It is because Great Britain has never abandoned protection on the water, because she has guarded her fleet, because she has encouraged her merchant marine that she has borne these three and a-half dreadful years. Let all who deem home industry worthy of support, and national security worthy of the best efforts of our statesmen, make their resolution now, that if Canada is to prosper Canada's home market must be cultivated and safeguarded.

The Jap in Canada

READERS of this issue of INDUSTRIAL CANADA will find matter of interest in Mr. Reynolds' article dealing with the efforts being put forth by the Japanese to find a market for their manufactured products in Canada. What is particularly significant about this development is the way in which the enterprising representatives of Japan's industrial community are setting about their work. They have apparently been making a close study of Canada's requirements, and are aiming to produce, pack and deliver goods in a manner suitable to the needs of this particular market. More than that they seem to be establishing and maintaining a certain standard of quality in all that they produce for export to the Dominion.

While it is desirable that Canadian manufacturers should look alive and not let their Oriental competitors get ahead of them in the home market, it is also worth their while to make a little study of the methods employed by the Japs in securing their export trade. The importance of building up exports is being impressed more and more strongly on the Canadian people, and it is surely a wise policy to learn as much as possible about the way in which export business can be successfully developed. Let us, therefore, observe the Jap closely and see if we cannot get some useful pointers from his method of doing business in foreign countries.

Suspense is Bad

IT is a most unsatisfactory policy which the Government is following as regards embargoes on imports from the United States. To suggest that such action is to be taken and then to delay taking that action is very bad for business. If the embargoes are to go on, they should have been announced at once rather than leave the whole business community in a paralyzing state of suspense. If they are not to go on, the sooner this fact is made public the better.



The Long Sault Rapid—St. Lawrence River

This rapid constitutes the most important international power site on the St. Lawrence, and has an estimated low water potential of some 600,000 horse-power. The illustration shows a near view of portion of the rapid

Electricity Will Not Replace Coal

Public Mind Should be Disabused of the Idea that, as a Heating Agent, Electrical Energy Can be Made an Adequate Substitute for Coal for the Citizens of Canada; its Economic Use is in the Direction of the Development of Power

By ARTHUR V. WHITE

Consulting Engineer, Commission of Conservation of Canada

In view of the fact that the question of heating was discussed at the first general professional meeting of the Canadian Society of Civil Engineers, held in Toronto on March 27, it should be explained that this article on the subject was prepared by Mr. White for Industrial Canada some time before this meeting and was therefore not suggested by anything that came up at that time. In fact, it was written on March 8, and received for publication on March 20.—Editor.

THE sooner it is realized that hydro-electric energy used *as a heating agent* can never be an adequate substitute for coal for the citizens of Canada, the sooner will action be concentrated upon sources from whence real relief may be derived—there is no use entertaining hope towards a source from which no sufficient relief can come.

As the subject of the utilization of electrical energy is complex in many of its aspects and broad in its ramifications, we cannot do more than survey some of its principal features in general outline.* It may be observed that the general conclusions drawn are not affected by refinements in the quantities used as a basis for this discussion; and, further, that our consideration is founded upon basic physical facts which are unaffected by financial factors.

A statement made, having the above facts in mind and which has caused considerable comment, says: "Let it be appreciated that Canadians need never expect to have electrical energy replace coal and other fuel for heating purposes except to a relatively limited extent."†

The underlying principles governing in this electrical-heating proposition are simple and may readily be understood by the general reader, as will appear from the following:

In order to determine what is technically termed the *mechanical equivalent of heat*, J. P. Joule, an Englishman,

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* For discussion of various aspects of power and fuel problems, consult an article by Arthur V. White on the "Exportation of Electricity," which appeared in the *University Magazine*, October, 1910, pages 460 *et seq.* Consult, also, *Toronto World*, March 18th, 1912; also "Exportation of Electricity—An International Problem; Relation of a Possible Coal Embargo by United States to a Curtailment or Stoppage of Canada's Electric Power," by Arthur V. White in *The Monetary Times Annual* of January 5th, 1917, pages 21 *et seq;* also "Coal Problem of Canada Demands National Action—A Solution of a Vital National and International Question," by same author in *The Monetary Times Annual*, January 4th, 1918, pages 25 *et seq.* Consult, also, *Annual Reports of Commission of Conservation*, Ottawa.

† See "Coal Problem of Canada Demands National Action," by Arthur V. White in *The Monetary Times Annual* of January 4th 1918.

about 1850—and subsequently a number of other experimenters—ascertained the number of foot pounds of energy required to raise one pound of water one degree Fahrenheit. In their simplest form, the experiments consist of confining a known quantity of water in an insulated vessel and transmitting to the water by means of agitated vanes—like a churn—the energy developed by a known weight falling through a given distance. Taking into consideration the results of various experiments, this equivalent may be taken at 778 foot pounds. It may be stated, for example, that 778 pounds falling through one foot will develop energy sufficient to raise one pound of water one degree Fahrenheit. This heat unit is termed a *British thermal unit*, or B. t u.

Now, by definition, a horsepower is 33,000 foot pounds per minute, or 33,000 x 60 foot pounds per hour. If, therefore, we divide 33,000 x 60 by 778, we obtain 2,545 as the heat units derivable from one horse-power-hour of energy. Correspondingly, the heat units derivable from one kilowatt-hour are 3,412.

It makes no difference, of course, what prime agency has resulted in the development of the power. Consequently, it may be stated that a horse-power-hour of electrical energy can only yield approximately 2,545 heat units." ‡

Four to One for Coal

If we take the heat value of anthracite coal at 14,000 B. t. u. and at $10.00 per ton, we have one cent as the cost of 28,000 heat units. This, if burned in ordinary house furnaces, at, say, 50 per cent. efficiency, gives a cost of one cent for 14,000 heat units. The heat value, however, in one kilowatt-hour is only 3,412 heat units, so that with electrical energy at one cent per unit one has the choice of—3,412 heat units for one cent from electrical energy, or 14,000 heat units as effective heat for one cent from the coal. In other words, on the basis of the assumed usable values, the advantage for heating lies 4 to 1 in the favor of coal.

Relation of Electricity to Anthracite

In the City of Toronto there are about 80,000 homes which, during the winter months, consume an average of about 10 tons per home—thus making a total consumption of 800,000 tons of anthracite. The total consumption is probably nearer 900,000 net tons, but we shall make the allowance of about 100,000 tons for cooking and other special heating purposes used outside the winter months.

Now, to supply from electrical energy the heat equivalent of the 800,000 tons of anthracite, at the time of the maximum rate of consumption and on the basis of 50 per cent. recovery, there would have to be available at a conservative estimate, 1,500,000 electrical horse-power.

If we take the population of Ontario at 2,500,000 and apply the same average fuel consumption as has just been taken for Toronto, there would have to be available no less than 7,500,000 electrical horse-power to heat the homes of Ontario during the coldest weather.

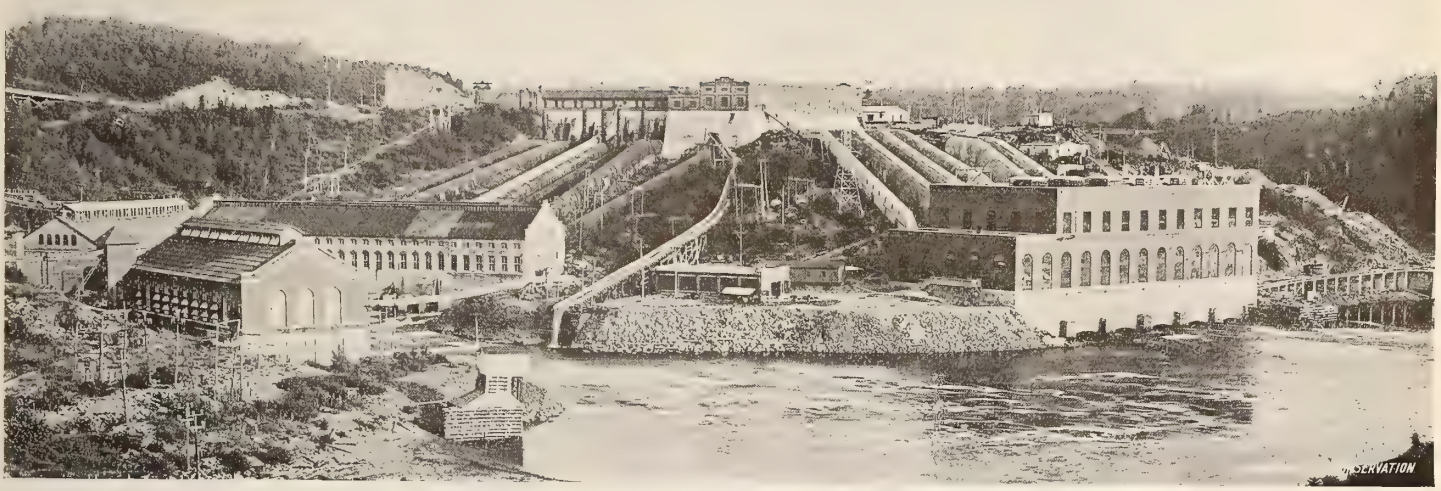
For purpose of further illustration, it may be assumed that a low maximum demand of electrical energy to heat an eight or nine-roomed house in Ontario, such as would ordinarily use 9 to 10 tons of anthracite coal for the winter season, would be from 15 to 20 horse-power—it would prob-

‡ See letter "Electricity Will Not Replace Coal," by Arthur V. White, in *Monetary Times*, March 1st, 1918.



Typical Stretch of Rapids on Pend D'Oreille River, British Columbia

This river, near its mouth, falls 400 feet in 16 miles, and in this distance has a low water potential of some 200,000 horse-power



Hydro-Electric Power Development on St. Maurice River at Shawinigan Falls, Quebec

Two hundred thousand horse-power is developed, half of which is used locally, chiefly for electro-chemical purposes

ably be nearer 30 horse-power, and, under certain conditions, would be a still greater quantity.

House Heating by Electricity

Considering then the 80,000 homes on the basis of approximately 20 horse-power, we derive, again, about 1,500,000 horse-power as the estimated electrical requirement for simply heating the homes of Toronto. This takes no account of lighting, other heating or power demands. It should be noted that the figures here presented are conservative and doubtless the quantities required might be substantially greater.

Now, taking the 2,000,000 tons of bituminous coal used annually in Toronto, and assuming that 500,000 tons of this are used for heating, we would require nearly an additional 1,000,000 horse-power of electrical energy to replace this half million tons, so that in reality our estimate of the heating requirements for Toronto—and this takes no account of power requirements—becomes 2,500,000 horse-power.

Again, if we assume that of the bituminous coal, 1,500,000 tons are used for power purposes to produce power generated from steam, under conditions which would probably require some 15 or 20 tons—it may even be 30 tons—of coal per horse-power year, then about 50,000 to 75,000 electrical horse-power would replace for *power* purposes, the power developed from one and a half million tons of bituminous coal.

We have here simply been illustrating our argument from conditions appertaining to a community like Toronto.

Replacing Anthracite by Electricity

Canada uses annually about 4,500,000 tons of anthracite coal, of which we shall assume 4,000,000 tons are used during the winter months. On the basis of the assumption just presented—viz.: that it would take 1,500,000 horse-power, at a time of maximum demand, to supplant the heat now derived from 800,000 tons of anthracite—Canada, to replace the 4,000,000 tons of anthracite coal, would require to have available 7,500,000 electrical horse-power.

Electricity is being used to a considerable extent for cooking, and other domestic purposes. Such uses will doubtless increase. It is estimated that if, at the present time, Toronto were to do its cooking by electrical ranges, it would require electrical energy to be available at a demand rate of 225,000 horse-power. Probably, this quantity could be reduced by change in diversity factor with such a large connected load as has been assumed.

Electrical Energy Efficiently Employed

If electrical energy is to be used wholesale, then it is more efficiently employed for *power* purposes; and the fuel, such as coal, oil, gas, etc., is more profitably employed directly for *heating* purposes. The total estimated potential water-power of Ontario is about 6,000,000 horse-power, and of Quebec, the same amount. The development in each province is about 750,000 horse-power. If the electrical energy already developed in the whole of Canada, amounting to about 1,800,000 horse-power, were all available for heating it would prove insufficient to replace the fuel used in Ontario by but half a million of its population.

Electrification of Railways

The electrification of steam railways would undoubtedly effect a great saving in coal.* At the present time the steam railways require about six pounds of coal to produce

* For reference to Railway Electrification, etc., consult interesting paper by Mr. A. S. L. Barnes, "The Fuels and Water Powers of Canada—A Consideration of Their Probable Spheres of Usefulness," in *Canadian Engineer*, February 21st, 1918; also recent address dealing with fuel and power problems, delivered by Mr. E. W. Rice, February 15th, 1918, before the American Institute of Electrical Engineers.

one horse-power-hour. This is about three times the quantity which would be required to produce the same amount of power in a modern central steam power station. The efficiency for the conversion of energy in the coal to mechanical power on the railways for steam locomotives, is less than 5 per cent. It will be perceived, therefore, that every pound of coal now utilized for steam traction, even on the basis of an efficiency for heating of 50 per cent., may be utilized ten times more profitably for heating than when burned under present conditions, on steam railways. Electrical traction is an accomplished fact. No single sphere of activity affords the opportunity for such great saving in fuel as steam railway operation. In Canada, about 9,000,000 tons of coal are annually used by the railways, and in the United States such roads consume about 25 per cent. of the total coal mined.

From the foregoing statements, it is evident that the public mind should be clear upon this subject of the use of electrical energy, so that the fuel problem as a whole, will not be obscured by attaching to electricity, as a heating agent, a weight to which it is not entitled.

Toronto, 8th March, 1918.

Lumbermen Co-operate

Logging and Manufacturing Interests of British Columbia Form an Advisory War Board to Better Insure Their Interests

A War Advisory Committee to better insure co-operation between the logging and timber manufacturing interests of the lumber industry of British Columbia and the keeping in continuous touch with the complex factors and changing conditions affecting log supply and demand, is the outcome of the recent negotiations which have been under way between representatives of those two branches of the industry and the Minister of Lands. Announcement to that effect was made recently by Hon. T. D. Pattullo, Minister of Lands. In consequence of the arrangements arrived at, it is believed, the vexed question of the export of British Columbia logs to the adjoining State of Washington, an export which the manufacturing interests objected to on the ground that it might impair the supply of logs for home consumption, has been settled, for the period of the war at least.

One of the most important questions affecting the forest industries of the Province is the extent to which the export of unmanufactured timber should be allowed. When war was declared in August, 1914, the matter became most critical, for the market for British Columbia lumber had previously been in a very depressed state and the general shock to business conditions still further reduced the demand. In consequence of this mills were unable to manufacture the large supply of logs then in the water, and these would inevitably have been spoiled by the teredos had not export to Puget Sound been allowed. Thus begun as a safety valve for the logging industry, export of logs has been continued since, except in the case of spruce, which, under a Dominion Order-in-Council last fall, is required to be manufactured in the Province, so that all possible material for aeroplane construction may be secured.

A Vexed Question

While the logging and timber manufacturing industries are dependent one upon the other and are bound together in many ways by mutual interest, the export question is obviously one in which difference of opinion between the two industries may easily arise. During the past three years this difference has occurred on several occasions, so that in 1915 each party presented its case to the Provincial Executive, and again last fall and winter representations were made to the Government. Recently a delegation from the logging interests affected waited upon the Minister of Lands to present the case for export. Meetings of the coast lumbermen, the shingle manufacturers and the box manufacturers were also held to nominate a combined deputation, which submitted the manufacturers' side of the case. Hon. T. D. Pattullo invited both sides to meet with the department in a round-table conference at which the question could be thoroughly threshed out. At this meeting the loggers were represented by Messrs. Munn, Lochead and Lamb; the manufacturers by Messrs. McLeod (for the sawmills), Coulter (for the shingle mills), McDonald (for the box factories), and the Department by Mr. Grainger, chief forester, and other forestry officials.

The friendly and co-operative spirit in which all parties approached what has been for over three years probably the most contentious matter between any two industries in the Province was strikingly shown by the fact that within an hour a complete and unanimous agreement has been reached on a series of resolutions covering all points at issue. These resolutions were submitted to the Minister, who gave them his unqualified approval. In giving his assurance of the vigorous support from the Government in every effort to strengthen the forest industries of the Province, the Minister asked that suggestions and criticisms be freely made both by loggers and manufacturers which would assist the Department, whether in market extension work or in improving its administrative methods. The resolutions approved by the Minister are as follows:

Means Co-operation

(1) That to provide a channel of information for each industry concerned as well as a method for keeping in continuous touch with the complex factors and changing conditions affecting log supply and demand, there be formed a War Advisory Committee. This committee to meet once a month and to be composed of nine members—three for the lumber manufacturers, three for the loggers and three for the Lands Department. An emergency sub-committee, consisting of one representative for each interest to meet, when necessary, during each month, the manufacturers' representative being chosen each month from the industry most likely to be affected by current conditions.

(2) That a fresh start for the consideration of the question of log export be made from the date of the meeting (March 20); that the matter be considered at each monthly meeting of the committee in the light of facts as they then exist, and that the recommendations made to the Minister at each meeting cover a period of one month ahead.

(3) That, except for logs covered by export permits issued up to March 24 for booms with tugs alongside by that date, there be not allowed up to the next meeting on April 22 an export of hemlock or fir nor any export of cedar other than of low grade cedar booms approved by the emergency sub-committee.

(4) That the emergency sub-committee for the period, March 20 to April 22, be the following: For the millmen, Mr. Coulter; for the loggers, Mr. Munn; for the Department, Mr. Van Dusen.

(5) That the next meeting of the War Advisory Committee be held at the office of the District Forester, Court House, Vancouver, at 10 a.m., April 22.

(6) That copies of all minutes and information be mailed to each member of the committee immediately after each meeting.

Wood Fuel as a Substitute for Coal

There is Urgent Need for Considering the Question of Greatly Increasing the Use of Wood Fuel, Particularly in Ontario and Quebec, and a Special Campaign Should be Launched for the Purpose

By CLYDE LEAVITT

Forest Engineer, Commission of Conservation of Canada

CANADA has enormous resources of wood suitable for fuel, and these resources constitute the most readily available substitute for use in case of shortage of coal supplies.

Under normal conditions, the demand for wood fuel is relatively small, owing primarily to the greater convenience of coal and other fuels, and, frequently, to their greater cheapness. The shortage in coal supplies has, however, resulted in an enormously increased demand for wood for domestic fuel. That this demand could be met only in part has been primarily due to the serious labor shortage, supplemented by the transportation shortage, which has largely prevented the prompt shipment of even the limited available wood supplies by rail. Furthermore, dealers have hesitated to embark on the wood business on a large scale, due to the uncertainty as to how long the emergency would continue. This consideration is an exceedingly important one in connection with the laying in of supplies for use during the winter of 1918-19. As the fuel situation for the small remaining portion of the present winter is now apparently fairly well in hand, it is to next winter that attention should now be directed.



The Farm Wood Lot Comes Into Its Own

The western provinces have large supplies of native coal, and the mine operators claim they can expand their production to practically any degree required. Accordingly, subject to temporary difficulties of local transportation, or strikes of the miners, the necessity for a large reserve of wood fuel, above normal supplies, is not apparent, so far as the four western provinces are concerned. As to the maritime provinces, the coal mines of Nova Scotia and New Brunswick should suffice for the most part, supplemented in some localities by the increased use of wood fuel. From the single viewpoint of national economy, especially in view of the extreme shortage of labor, it is for the most part preferable to use coal for domestic fuel, instead of wood, for the simple reason that the labor of one man for one day in the coal mines will produce fuel containing perhaps eight times as many heat units as the same amount of labor expended in cutting wood.

The foregoing consideration is modified to some extent by the desirability, as a matter of national policy, that Canada should be as little dependent as practicable upon foreign countries for fuel supplies. This applies particularly to the provinces of Ontario and Quebec, which have no coal supplies of their own, and which are accordingly dependent altogether upon the United States for anthracite coal and almost altogether for bituminous coal. It is, therefore, in these two provinces that there is the most urgent need for considering the question of greatly increasing the use of wood fuel, as an emergency measure.

If the experience of the past winter can be taken as any criterion of what we may expect next winter, there is every reason for the most vigorous measures of preparedness with reference to the wood fuel situation. The Dominion Fuel Controller has repeatedly expressed the opinion that the people of Eastern Canada should lay in large reserves of wood fuel as a guarantee against possible disaster next winter. The campaign of education along this line, conducted by the Commission of Conservation, was at the direct request, and with the full concurrence of the Fuel Controller. As a measure of preparedness, the campaign is undoubtedly justified and should be expanded very materially through increased activity on the part of provincial, city and municipal organizations.

A well-organized compaign has been carried on throughout the past winter, in a large number of the states of the Union, particularly those east of the Mississippi River, with the object in view of greatly stimulating the production and consumption of wood fuel, to avoid local suffering and to release coal urgently needed for munitions manufacture and other purposes directly connected with the prosecution of the war. This campaign has been conducted under the auspices of the Federal Fuel Controller, through the State Fuel Controllers appointed by him, supplemented by the organization of wood fuel committees, wood fuel bureaus, etc., upon which diverse business interests are represented, as well as the local forestry agencies, whether federal, state or local. In this way, through the assignment of special men for actual work in the field, as well as by the issuance of a vast amount of publicity material, the campaign has been carried down into the individual counties, towns and rural districts, with a view to securing specific action of a character adapted to the needs of the local situation in each case. Surely, if such an intensive campaign is considered essential in nearly all of the Eastern States, many of which have their own coal supplies, it is no less imperative in Eastern Canada, which is wholly dependent upon the United States for anthracite coal.

The campaign in the United States has aimed primarily at bringing about the greatest possible use of wood fuel, particularly in the rural communities, where wood is usually

accessible, and where team haul or water transport can be substituted for rail haul. The car shortage has been a prime factor in the coal shortage in the United States, and it was desired to relieve the railways to as great an extent as practicable. The same considerations apply in large measure to Canada. At the same time, the extensive use of wood fuel has been found entirely practicable in many of the towns and cities of the Eastern States, and the same is true of Eastern Canada. The City of Ottawa, for example, has contracted for some 13,000 cords of hardwood fuel for next winter's use.

The establishment of municipal woodyards is one of the most practicable methods of meeting the situation, as has been shown by the experience during the past winter of quite a number of towns and smaller cities, particularly in Ontario.

South-Western Ontario

The situation in the thickly-settled portions of south-western Ontario offers the greatest difficulty, due to the fact that, in many cases, there are not adequate supplies of standing timber within easy reach. Usually, however, at least partial supplies can be derived from farmers' wood lots. The Department of Lands, Forests and Mines of Ontario has offered to city and municipal governments the privilege of cutting cordwood, free of charge, in Algonquin Park. For the cities of south-western Ontario, however, the distance is so great as to render the freight rates almost or quite prohibitive, to say nothing of the difficulty of securing cars. During the summer season, however, this difficulty will presumably not be so great. On the other hand, the labor situation renders it of the greatest importance that at least the bulk of the wood-cutting operations be completed in time not to interfere with the movement of labor to the farms. Vigorous action during the remaining portion of the spring is therefore of the most vital importance if the situation for next winter is to be met to anything approaching an adequate degree.

Experience has shown that it is altogether feasible to materially relieve the coal shortage by a more extensive use of wood fuel in at least the following directions:

1. Farmers and rural communities generally, within easy reach of wood supplies, should make as general use of this fuel as possible.

2. The general substitution of wood for coal in furnaces and stoves during early autumn and late spring, as well as during mild weather in the winter, when only a moderate fire may be required.

3. The heating by wood of churches, lodge-rooms, halls, etc., where warmth for only a limited period of time may be necessary.

4. In many cases, it will be quite feasible to eke out limited stores of coal by burning wood in the daytime, reserving coal for holding the fire over night.

5. Furnaces may be run low, keeping the house in general only warm enough to prevent water pipes from freezing, supplementing this by the use of wood fuel in stoves or grates to keep the living and dining rooms comfortable.

6. Wood can be used much more generally than at present as a substitute for coal in cooking.

7. A great saving of fuel can be accomplished by making windows and doors tight against the entrance of cold air from the outside, through the use of weather stripping, etc.; also by the insulation of furnaces and pipes with coverings of asbestos and other suitable material. Further, wherever possible, the burning of mill waste in incinerators should be avoided by saw-mill owners, and this material reserved for heating during the ensuing winter.

Each city and municipal government should investigate carefully the local situation and determine to what extent it is necessary to supplement the efforts of the regular dealers, in order to maintain a suitable reserve of wood fuel for emergency use. All accessible sources of supply should be considered, as well as what measures are feasible to make the necessary amount of wood available for use. Under some circumstances, the city or municipality should purchase a reserve supply outright. In other cases, some form of guarantee against loss by local dealers may be found practicable, such as would justify the purchase of a stipulated quantity of wood at a fixed price.

Farmers and rural communities generally should revert, so far as possible, to the use of wood fuel. Farmers should also be urged to cut additional supplies of wood for sale for town and city use. This, in the aggregate, would help tremendously in relieving the coal shortage.

The provincial governments, on the other hand, may render a great public service by entering vigorously into this campaign. Someone familiar with conditions, preferably working under the direction of the Provincial Forester, should take these matters up actively with city and municipal governments. A campaign of education may be expected to stimulate both the production and consumption of wood fuel.

Hazards of Handling Materials

Thirty Per Cent. of Industrial Accidents Occur in the Handling of Materials and Supplies

"Safety problems in handling materials and supplies by hand, trucking and piling" was the subject discussed at a meeting of the New York Local of the National Safety Council, held recently in the American Museum of Safety, 14 West Twenty-fourth Street, New York. It was pointed out that thirty per cent. of industrial accidents occur in the handling of materials and supplies. To prevent such accidents, it was determined, was a problem of the utmost importance and for this reason the organization selected this for its topic of discussion.

The meeting marked the inauguration of a nation-wide campaign to reduce the number of this class of accidents. The importance of solving the problem, especially while the country is at war and may have to call on many of the country's workmen, attracted the largest attendance of members in the history of the organization. About seventy members, representing the big railroad systems, large insurance companies and private industrial plants, attended.

Practical demonstrations in the handling of materials and supplies were given by men trained in such work, a specially constructed stage being used for the purpose. Certain machinery and safety devices on exhibition at the museum were used in the demonstrations.

That the prevention of this kind of accidents was a subject that required the immediate and earnest consideration of the organization was emphasized at the last meeting when a member, representing a large plant, revealed that forty per cent. of the workmen had been injured while engaged in handling supplies and materials. There are devices to control this class of accidents, it was pointed out; but the bulk of them are attributable to individual negligence.

MacKinnon, Holmes & Co., Limited, of Sherbrooke, Que., have opened a sales office at 404 New Birks Building, Montreal, Que., Mr. W. J. Lochhead being in charge.

Text of the Revised Fuel Regulations

On the Recommendation of the Minister of Trade and Commerce and under the Provisions of the War Measures Act, 1914, the following Regulations Governing the Importation, Sale and Delivery of Coal were Approved by Order-in-Council dated March 20, 1918

THE Fuel Controller and all persons mentioned in the following regulations are vested with the powers necessary to enable him or them to give full effect to the said regulations, and the penalties provided in the said regulations are declared to be just as effectively imposed as if enacted by the Governor-in-Council in the provisions of the War Measures Act, 1914.

Particular attention is directed to the penalty clauses of the regulations, and especially to the fact that any person who commences or continues to import coal without having made application for a permit, as provided for, *will be subject to a penalty not exceeding $50 for each day such business is conducted in contravention to these regulations.*

REGULATIONS REGARDING THE IMPORTATION, SALE AND DELIVERY OF COAL

Issued by the Fuel Controller for Canada

Pursuant to the authority vested in him by paragraph (3) of the Order in Council of the 12th July, 1917 (P.C. 1887), the undersigned hereby makes the following regulations governing the price of coal and the importation, distribution, sale and delivery thereof.

Interpretation

1. In these regulations so far as concerns any particular transaction unless the context otherwise requires:—

(*a*) "Operator" means a person who mines coal and sells the same;
(*b*) "Broker" means a person who buys and sells coal or arranges such transaction between buyer and seller, but in either event does not physically receive and handle the coal;
(*c*) "Wholesale dealer" means a person who physically handles and sells coal to a retail dealer;
(*d*) "Retail dealer" means a person who physically handles and sells coal to a consumer;
(*e*) "Dealer" means any wholesale or retail dealer;
(*f*) "Importer" means a person who imports coal from without the Dominion of Canada;
(*g*) "Consumer" means a user of coal for domestic, industrial or any other purposes;
(*h*) "Fuel Administrator" means any individual or Board appointed under Par. 2 of these regulations;
(*i*) "Fuel Commissioner" means any individual or Board appointed under Par. 4 of these regulations.

Organization

Provincial

2. The Government of each of the Provinces of Canada may appoint a Provincial Fuel Administrator or Board of Administrators for such province and may create such central provincial organization as may be deemed necessary. Any expense so incurred shall be borne by each Province.

3. The duties of Fuel Administrators shall be:—

(*a*) To supervise the distribution of all coal and other fuel imported into or made available within such Province.
(*b*) To develop the demand for and supply of wood and other coal substitutes to the greatest possible extent.
(*c*) To promote and administer any organization prescribed by these regulations within the Province.
(*d*) To gather and compile statistics dealing with the production and consumption of fuel of all kinds within the Province.
(*e*) To promote within the Province the greatest development of any coal areas available.
(*f*) Generally to assist and advise the Fuel Controller for Canada in the discharge of his duties and to enforce any regulations that may from time to time be prescribed by him.

Municipal

4. The Council of any municipality may appoint a Local Fuel Commissioner or Board of Fuel Commissioners with such organization as may be deemed necessary. Any expenses so incurred shall be borne by the municipality.

5. On the petition of two-thirds of the dealers in any municipality addressed to the Fuel Administrator preferring complaint against any Fuel Commissioner the said Fuel Administrator shall forthwith cause an investigation to be made into the said complaint, and if sufficient cause be shown, may call upon the municipality to remove such officer.

6. The duties of Fuel Commissioners shall be:—

(*a*) To co-ordinate the work of fuel dealers in apportioning and delivering coal during any period of fuel scarcity within such municipality.
(*b*) To institute when deemed necessary a system of controlling retail coal deliveries through orders on dealers within the municipality issued by the Fuel Commissioner.
(*c*) Generally to assist the Fuel Administrator in enforcing such regulations as may from time to time be made by the Fuel Controller for Canada.

Licensing of Dealers and Importers

Importer's Permit

7. Any person engaged in or who desires to engage in the business of importing coal into Canada who has not obtained a permit under the Coal Regulations of the 26th October, 1917, shall forthwith mail to the Fuel Controller by registered letter an application for a Permit in Form "A" in the schedule hereto and if approved an "Importer's Permit" in Form "B" hereof shall be issued. Such permit shall be prominently exposed in the Permittee's office. No one shall commence the business of importing coal into Canada after the coming into force of these regulations without obtaining a Permit in said Form "B."

Dealer's Permit

8. Any person engaged in or who desires to engage in the business of selling coal as a broker, wholesale or retail dealer who has not obtained a permit under the Coal Regulations of the 26th October, 1917, shall forthwith mail to the Fuel Controller by registered letter an application for a Permit in Form "C" hereof and if approved a "Dealer's Permit" in Form "D" hereto shall be issued. Such permit must be prominently exposed in the Permittee's office. No one shall commence the business of selling coal as a broker or dealer after the coming into force of these regulations without obtaining a permit in said Form "D."

9. In case any importer, broker or dealer fails to obey any directions in writing issued by the Fuel Administrator or the Fuel Commissioner or is found guilty of having given short

weight or in case there is other sufficient cause as to which the Fuel Controller shall be the sole judge the said Fuel Controller may forthwith suspend or cancel any permit issued by him upon giving notice to the Permittee by registered letter and may afterwards renew such permit as he may in his discretion see fit.

Illegal Dealing in Coal

10. Any person who commences or continues to import or deal in coal without having made application for a permit as herein provided or who has been notified by registered letter by the Fuel Controller that the said application has not been approved or that any permit issued to him by the Fuel Controller has been suspended or cancelled shall on summary conviction be subject to the penalty imposed under Par. 34. A penalty not exceeding $50 for each day such business is conducted in contravention of these regulations may also be imposed.

Regulating Coal Prices

11. Every operator in Canada outside the portion of British Columbia and Alberta known as District No. 18, shall if and when required by the Fuel Controller enter into an agreement with him in writing fixing the maximum prices per ton he may charge for the output of his mine and containing such other terms and conditions as may be agreed upon. If any operator fails to make an agreement, satisfactory to the Fuel Controller as and when required the Fuel Controller may himself by writing under his hand, fix the maximum prices to be charged by such operator and prescribe such further terms and conditions governing the disposal of the output of the mine as he may deem expedient. A copy of such writing shall be mailed by registered letter to the manager of the mine affected thereby, and thereupon the operator shall be under the same obligation to give effect to the same as if he had entered into an agreement with the Fuel Controller in the terms of such writing.

Brokers' Commissions

12. Commissions or charges by brokers on coal shall not exceed the sum of thirty cents (30c.) per net ton and no more than one such charge shall be made in Canada in respect of any coal.

Wholesale Profits

13. Wholesale dealers shall be permitted to charge a profit or commission not to exceed the sum of thirty-five cents (35c.) per net ton on any ton of coal over and above the average cost price to such wholesale dealers of the said coal and including a reasonable proportion of the cost of handling and a reasonable proportion of overhead expenses and fixed charges and not more than one such charge of thirty-five cents per ton shall be made in Canada in respect of any coal, but no coal shall there be allowed both a charge for brokerage in Canada and a wholesale charge unless under special circumstances and with the written consent of the Fuel Controller.

Retail Profits

14. Retail dealers shall be permitted to charge a profit not to exceed fifty cents (50c.) per net ton on any coal over and above the average cost price to such retail dealers of the said coal and including a reasonable proportion of the cost of handling and a reasonable proportion of the overhead expenses and fixed charges. On the sale of any quantity of coal less than one net ton the same proportionate profit may be charged except that on any quantity less than two hundred pounds a profit of five cents (5c.) may be charged.

Calculating Cost Prices

15. The maximum price at which any size and grade of coal may be sold by a dealer during the period from the first day to the fifteenth day of any month both inclusive shall be the average delivered cost price to such dealer of such size and grade of coal on hand on the first day of such month plus a reasonable proportion of the cost of handling, plus a reasonable proportion of overhead expenses and fixed charges plus a profit not exceeding that permitted in the preceding paragraphs. Similarly from the sixteenth day to the last day of any month both inclusive the maximum price shall be based upon the average cost of coal on hand on the sixteenth day of the month.

16. These regulations shall not prevent any dealer or broker from selling any coal at a price less than the maximum at which he is permitted to sell under these regulations.

Returns and Access to Records

17. The Fuel Controller or his duly authorized agent shall have access to all books, records, documents and papers of any kind whatsoever relating directly or indirectly to the business affairs of any operator, dealer or importer, and all such persons shall supply the Fuel Controller or his agent with all information and statements as and when required by the said Fuel Controller or his agent. Any such person failing to give such information when so demanded shall be guilty of an offence and on summary conviction subject to the penalty provided under Par. 34. A further penalty not exceeding $100 per day for each day during the period of such default may also be imposed.

18. In the event of failure to furnish information under Par. 17 on the part of any operator, dealer or importer the Fuel Controller or his duly authorized agent is hereby empowered to cause all such books, records, documents and papers relating to the business of any such defaulter to be seized wherever they may be and placed in his custody. Any person having in his possession and failing upon demand in writing by the Fuel Controller or his agent to surrender any books, records, documents and papers as demanded shall on summary conviction be guilty of an offence and subject to the penalty provided under Par. 34.

19. Every importer of and dealer in anthracite coal shall on or before the 30th day of April, 1918, by registered letter mail to the Fuel Controller a statement in Form "E" hereof showing the sales of anthracite coal for the coal year ending the 31st day of March, 1917, and also for the coal year ending the 31st day of March, 1918, giving information regarding the tonnage of anthracite coal sold by him and by any separate branch or selling organization maintained by him outside the city, town or village within which the head office of such importer or dealer is located.

Local Control and Distribution

20. The Fuel Administrator may give directions in writing to the Fuel Commissioner within any municipality respecting the equitable distribution and prompt delivery of coal therein not inconsistent with these regulations, and shall file a copy of such directions with the Fuel Controller for Canada. The Fuel Commissioner shall forthwith mail a copy of the said directions to each dealer within the municipality by registered letter.

Restriction of Coal Deliveries

21. (*a*) No dealer shall except as permitted by Par. 21 (*c*) hereof, sell or deliver to a consumer, and no consumer shall receive any quantity of coal which added to the quantity of such coal which such consumer may then have on

hand would constitute more than an estimated supply sufficient for seventy per centum of such consumer's normal needs to the 31st March, 1919.

(*b*) The provisions of this paragraph shall not apply to railways, munition plants, public utilities, asylums, convalescent homes, public buildings and hospitals, and nothing herein contained shall prevent any person from having on hand or procuring at any time such minimum supply of anthracite coal as will altogether not exceed six tons.

(*c*) The Fuel Administrator may from time to time by written order directed to the Fuel Commissioner entirely suspend the operation of Par. 21 (*a*) or may increase the percentage of coal which consumers in any municipality may be permitted to receive under this paragraph for any period and in any manner he may deem advisable.

22. When so ordered by the Fuel Administrator all dealers in any municipality selling coal direct to consumers shall require each consumer to sign a statement in Form "F" hereto.

23. Notwithstanding the absence of any specific order under Par. 22 by the Fuel Administrator any dealer selling coal direct to a consumer may require the said consumer to sign a statement in Form "F" hereto.

24. The production by any dealer of a statement signed by the consumer as set forth in Form "F" hereto shall if in conformity with Sec. 21 be prima facie evidence that no breach of paragraph 21 of these regulations has been made by such seller.

Restricting Use of Coal

25. The Fuel Commissioner with the approval of the Fuel Administrator may by registered letter issue order to any or all fuel dealers within the municipality prohibiting such fuel dealers from supplying coal for any stated period or until otherwise directed to any individual consumer or group of consumers requiring coal for purposes not deemed vitally important.

26. Upon the written recommendation of the Fuel Commissioner the Council of any municipality may make orders governing the curtailment in the use of coal or wood in public halls or other meeting places within the municipality.

27. Anthracite coal in what is commonly known as prepared sizes shall not be used by any industrial consumer for heating or power purposes without first obtaining the written authority of the Fuel Administrator.

Requisitioning of Coal

28. When in the judgment of the Fuel Commissioner an emergency exists he may, subject to the approval of the Fuel Administrator, requisition any quantity of anthracite coal in the possession of any consumer in excess of the supply permitted under paragraph 21 hereof and may direct the disposal of such excessive supply of coal.

29. Where a requisition is made pursuant to the provisions of paragraph 28 hereof the Fuel Commissioner may authorize any local dealer to enter the premises of the consumer named therein and remove therefrom the required quantity of coal and deliver the same to such person as he may direct. Such dealer shall be liable to pay to the owner of such coal the compensation due to him under paragraph 30 hereof and may charge the person to whom it is delivered such price per ton as will reimburse him the amount of such compensation plus actual cost of delivery and profit not exceeding twenty-five cents per ton.

30. The compensation to be paid the owner of any coal so requisitioned shall be the actual value of the said coal at retail at the time of such requisitioning or at his option the actual cost at the time of purchase plus seven per cent. interest to date of requisition. In case of disagreement the decision of the Fuel Commissioner shall be final.

31. For his information and assistance in carrying out the provisions of paragraphs 28, 29 and 30 hereof the Fuel Administrator may require the Council of any municipality—

(*a*) To cause an immediate and independent investigation to be made into the local fuel situation and to report the result to him;

(*b*) To state by formal resolution whether or not in its opinion an emergency justifying requisitioning of coal under the preceding provisions actually exists;

(*c*) To submit to him recommendations with regard to any matter connected therewith.

Delivery Facilities

32. The Fuel Commissioner may by written notice directed to any fuel dealer, carter or any other person within the municipality requisition the use of any horse, wagon, sleigh and other delivery equipment owned by or being in the custody of such person for the purpose of expediting coal deliveries during any period when an emergency is deemed by such Fuel Commissioner to exist. He shall also fix the remuneration and make directions for the use of such equipment. Failure to comply with such notice or to obey such directions shall render the offender liable to a fine not exceeding $100 for each offence or in lieu thereof imprisonment for a term not exceeding three months or to both fine and imprisonment.

Daily Reports

33. The Fuel Commissioner may by written notice require any dealer within the municipality to furnish him daily with statements showing—

(*a*) Tonnage of coal of various classes received the previous day and total quantity on hand.

(*b*) A list of orders for coal booked by him the previous day.

(*c*) A list of coal deliveries showing quantity by class and name and address of each recipient made by him the previous day.

(*d*) The prices charged for coal so delivered.

Penalties and General

34. Any importer, dealer or other person contravening any of the provisions of these regulations or of any agreement entered into with the Fuel Controller or failing to observe any directions of the Fuel Controller or of the Fuel Administrator under paragraphs 11 or 28 hereof or making a false statement in the form set out in paragraphs 19, 22, 23 or 33 hereof knowing the same to be false shall upon summary conviction be guilty of an offence and unless otherwise provided be liable to a fine not exceeding $1,000 for each offence or imprisonment for a period not exceeding six months or to both fine and imprisonment.

35. Where an information is laid against any dealer or broker for an offence under paragraphs 12, 13, 14 or 29 of these regulations the onus shall be upon the defendant to establish that the prices charged by him did not exceed those authorized by these regulations.

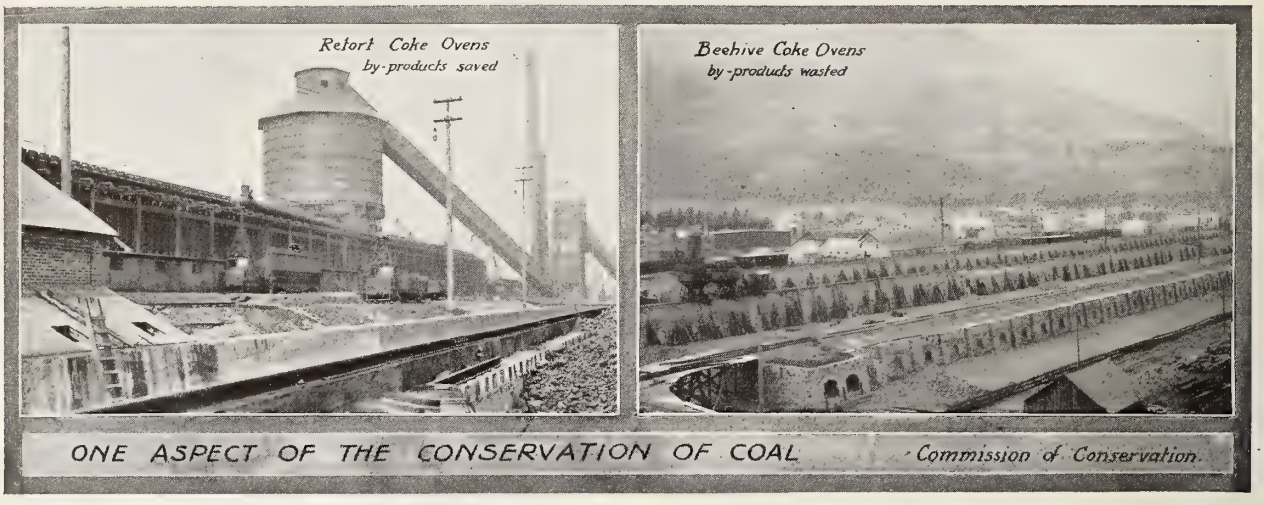
36. No information shall be laid by anyone excepting the Fuel Controller against any importer, dealer, or broker without first submitting the facts to the Fuel Administrator and obtaining his consent in writing.

37. The regulations regarding the importation and sale of coal approved by Order in Council of the 26th day of October, 1917, are hereby repealed.

38. These regulations shall be in force and effect from and after the first day of April, 1918.

(Sgd.) C. A. MAGRATH,
Fuel Controller.

Dated at Ottawa, the 15th day of March, 1918.



By-product Coke Ovens, Algoma Steel Co., Sault Ste. Marie

Canada's Own Coal and the Fuel Problem

Bituminous Coal and Substitutes such as Peat, Electric Energy and Coke Must Replace the Anthracite Coal from the United States, the Production of Which is on the Decline, and the Zone of Consumption of Domestic Coal Must be Enlarged

By W. J. DICK

Mining Engineer, Commission of Conservation of Canada

THE investigation for the International Geological Congress, held in Canada in 1913, indicated that the world's actual known and estimated reserves of coal of all kinds, available within a depth of 6,000 feet from the surface, aggregated 7,397,553 million tons, or, approximately 5,000 times the world's present annual consumption of coal. Of this estimated total reserve, 6.71 per cent. is anthracite (over 80 per cent. in Asia, mainly in China) and 52.74 per cent. belongs to the less valuable sub-bituminous class which includes all the lignites and brown coals. In geographical distribution, no less than 68 per cent. of the total is in North America, 17.3 per cent. in Asia, 10.6 per cent. in Europe, 2.3 per cent. in Oceania, and only 0.8 per cent. in Africa, allowing 1 per cent. for scattered deposits.

The distribution by countries is as follows:—

16.4 per cent. in Canada, 51.8 per cent. in the United States, 13.5 per cent. in China, 5.7 per cent. in Germany, 2.5 per cent. in Great Britain, 2.4 per cent. in Siberia, 2.2 per cent. in Australia, and 5.4 per cent. in small deposits widely distributed over many smaller countries. As Canada and the United States have the largest reserves of coal, it is probable that, when Europe's coal supplies are approaching exhaustion, many great manufacturing industries will centre in North America.

The coal deposits of Canada are second only to those of the United States in quantity, and compare favorably with those of other great coal mining countries in quality, quantity and accessibility for mining purposes. The known area in Canada underlain by workable coal beds is estimated by D. B. Dowling‡ at 111,168 square miles, containing over 1,300,000

COAL RESOURCES OF CANADA

Province.	Area of coal land (in square miles).	Semi-anthracite (in tons).	Bituminous (in tons).	Sub-bituminous (in tons).	Lignite (in tons).
Nova Scotia	520.81	.....	10,690,864,800	.....	.....
New Brunswick	121.00	.....	166,000,000	.....	.....
Ontario	10.00	.....	.....	.....	27,500,000
Manitoba	48.00	.....	.....	.....	176,000,000
Saskatchewan	13,406.00	.....	.....	.....	65,793,200,000
Alberta	81,878.00	845,900,000	217,918,140,000*	932,053,100,000	29,095,000,000
British Columbia	6,045.00	.....	77,922,836,000*	.....	5,715,600,000†
Yukon	2,840.00	.....	275,000,000*	.....	5,159,000,000†
North-west Territories	300.00	.....	.....	.....	5,280,000,000
Arctic Islands	6,000.00	.....	6,600,000,000	.....	.....
Total	111,168.81	845,900,000	313,572,840,800	932,053,100,000	111,246,300,000

* Includes some semi-anthracite. † Includes some sub-bituminous. ‡Geological Survey.

millions tons of coal. For convenience in classification, the coal-fields may be divided into four main divisions, as follows:

(1) The Eastern Division, containing the bituminous coal-fields of Nova Scotia and New Brunswick.

(2) The Central or Interior Division, containing the lignites of Manitoba and Saskatchewan, and the lignites, sub-bituminous, bituminous and semi-anthracite coal-fields of Alberta, and the bituminous coal-fields of the Rocky Mountains in Southeastern British Columbia.

(3) The Pacific Coast Division, containing the bituminous fields of Vancouver Island, and bituminous and semi-anthracite fuels of Queen Charlotte Islands and the interior of British Columbia, and the lignites of Yukon.

(4) The Northern Division, containing the lignites and low-grade bituminous coal of the Arctic-Mackenzie basin.

The coal areas of the various provinces and the estimated coal resources are found in table on previous page.

Although the coal reserves of Canada have been shown to be large, the production is relatively small. However, Canada is still in the earlier stages of industrial development. The principal coal reserves are situated in the interior and remote from the principal markets. only the relatively small portion on the Atlantic and Pacific seaboards being available for export. Notwithstanding the virgin character of our coal-fields, we are greatly handicapped, at the present time, by the high cost of producing and shipping our coal. As much of our coal, not now available, is remote from transportation, only the exercise of careful conservation will enable us to keep the price, and therefore the more universal use of coal, near present levels. The gradual deepening of our coal mines and the opening up of new ones in less favorable localities, cannot but increase the price of coal and thus effect changes in our industrial condition. It is not urged that we should interfere with the free development and use of our coal resources, but that our duty lies in the earnest and wise application of knowledge to their development and use. The wasting of this valuable asset is not only an economic loss to ourselves, but it is the means of placing a burden upon our national life which can never be removed.

In order to conserve the coal in developed areas and also prevent the economic waste through the added cost necessary to develop new areas, all waste should be reduced to a minimum.



Steel Bankhead, No. 2 and No. 9 Collieries, Dominion Coal Co., New Aberdeen, N.S.

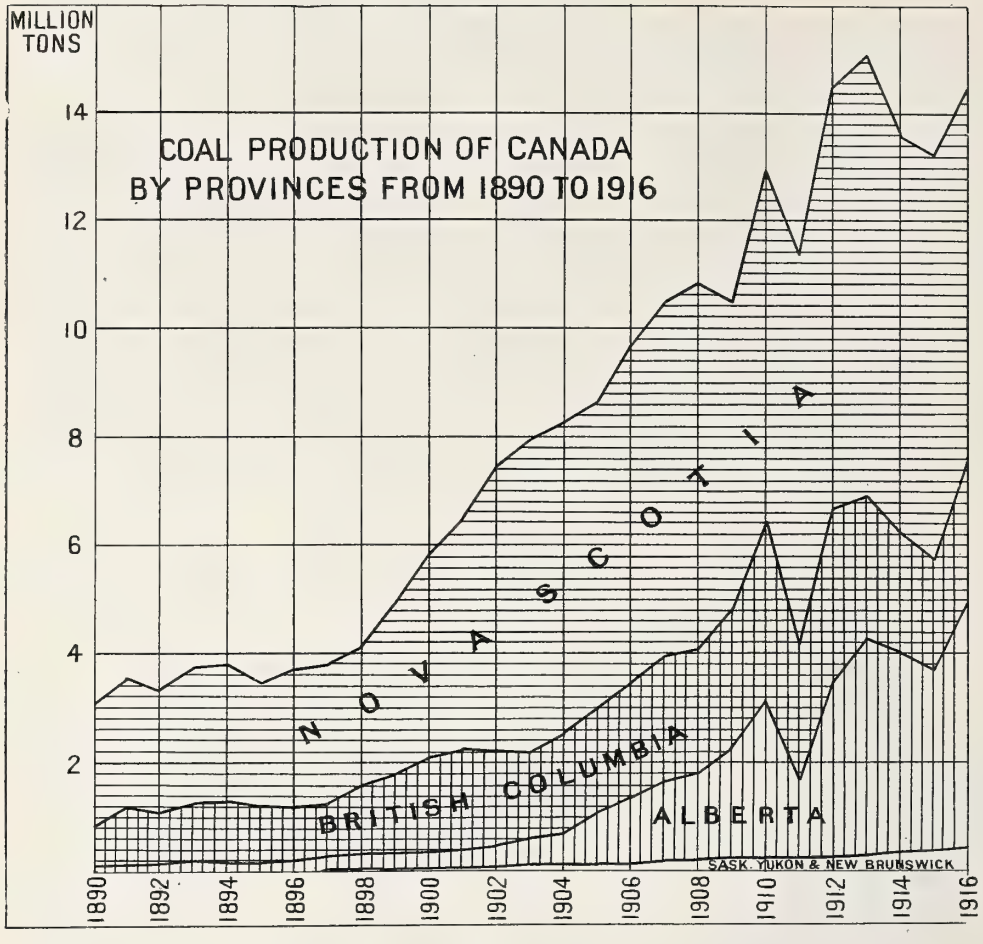
At the present time, a large proportion is lost or wasted. The waste of slack coal is small in comparison to the amount left in as pillars or to the loss of whole seams through caving of the measures.

The largest reserves of coal in Canada are situated in Alberta, Saskatchewan and British Columbia. The unalienated coal resources of Alberta and Saskatchewan are held by the Dominion Government whose duty it is, therefore, to protect these rights for the public.

The coal mining industry of Canada has developed very rapidly. In 1874, the earliest year for which there is a reliable record, the production was 1,063,742 tons. In each of the two succeeding twelve-year periods, the output doubled, totalling 4,173,108 tons in 1898. From 1898, it rose more rapidly, and, in six years, again doubled, amounting to 8,254,595 tons in 1904. In 1913, the production was 15,012,178 tons, or an increase of nearly 85 per cent. in nine years. Owing to labor troubles in Western Canada, this rate of increase is somewhat lower than the rate prior to 1904. In 1916, the production was about 14,483,000 tons. As 2,135,359 tons was exported, the domestic consumption of Canadian coal aggregated 12,348,036 tons.

The accompanying diagram shows that the production of Canada can, for present purposes, be divided into four parts. In 1916, Nova Scotia, Alberta and British Columbia, in the order indicated, contributed 6,912,140, 4,559,054 and 2,584,061 tons respectively. The remainder, approximately 454,818 tons, came from Saskatchewan, New Brunswick and Yukon. Although domestic production has increased rapidly the imports of coal into Canada have increased more rapidly. In 1886, the imports totalled 1,962,604 tons. Twelve years later, in 1898, they had increased by about 70 per cent., to 3,374,170 tons. From 1898, they rose very rapidly, and, in six years, more than doubled, amounting to 6,936,959 tons in 1904. In 1913, they reached 18,201,953 tons, or an increase of over 260 per cent. in nine years. In 1916, we imported 17,580,603 tons.

Of the total consumption during 1916, 41 per cent. was domestic coal and 59 per cent. imported coal; in other words, Canada imports more coal than she produces. The importance of this fact may be more fully appreciated when it is realized that the value of our coal production—$38,817,481—greatly exceeds that of any other mineral product and, in 1916, constituted over 21 per cent. of the total mineral production of



Canada. In brief, although Canada has over 16 per cent. of the world's reserve of coal, our domestic production is, in prosperous times, considerably less than our imports. This condition is due to the geographical position of the coal-fields of Canada, which are situated in the eastern and western portions of the Dominion and are about 2,500 miles apart. Consequently much of the interior portion of Canada is supplied by United States coal.

Zones of Consumption.

Anthracite Coal.

Eastern Canada possesses no deposits of anthracite coal. As this class of coal is admirably suited for domestic heating and cooking, it is imported in considerable quantity from the United States, and is sold over an area extending from Nova Scotia, in the east, to Battleford, Sask., in the west. The imports of anthracite in 1916 amounted to about 4,571,000 tons, over double the imports of 1906. The demand for this class of coal is therefore increasing, notwithstanding the rising prices. The supply of anthracite in United States is limited, and there is no assurance that its export to Canada will be long continued. At the present rate of production the anthracite supplies of United States will be exhausted in about 100 years. The maximum production has been reached and the output is declining at the rate of about one per cent. per annum. There is, therefore, every indication that, ere long, Canada will be unable to get anthracite coal from United States except at greatly increased cost. This increase is already being felt. It is also evident that, as Eastern Canada possesses no supplies of this class of coal, it cannot be supplied from her own resources. Bituminous coal and substitutes, such as peat, electric energy, and coke must be used.

In 1916, over 533,000 tons of anthracite coal was imported *via* Port Arthur, Fort William and Manitoba ports of entry. At least four-fifths of this amount was used as a domestic fuel in Manitoba and Saskatchewan. These markets could be supplied to a great extent by carbonized lignite briquettes and coal produced from mines in Saskatchewan and Alberta. The substitution of these fuels for anthracite coal would save to Canada's trade, annually, some $4,600,000 which is now paid to coal producers and railways in United States. The following table* shows the estimated cost of carbon briquettes compared with the price of United States anthracite coal in certain cities in Manitoba and Saskatchewan:

Bituminous and Lignite Coal.

In normal times, the distribution of bituminous coal in Canada is as follows:

(1) Nova Scotia coal is used only as far west as Cornwall, Ont.

City.	U. S. anthracite used in 1916-17. Tons.	Price of U. S. anthracite per ton f.o.b. †	Carbon Briquette. Freight and switching.	Carbon Briquette. Estimated price f.o.b. cars.‡	Difference in favor of carbon briquettes.
Winnipeg	200,000	$9 50 to $10 00	$1 90	$10 15	.....
Portage la Prairie	4,000	10 00 " 10 50	1 80	10 05	$0 00 to $0 45
Carberry	1,050	10 65 " 11 15	1 60	9 85	0 80 " 1 30
Brandon	9,200	10 60 " 10 85	1 50	9 75	0 85 " 1 10
Virden	2,280	10 80 " 12 15	1 60	9 85	0 95 " 2 30
Moosomin	1,836	11 00 " 12 25	1 80	10 05	0 95 " 2 20
Wolseley	1,012	11 50 " 11 75	1 80	10 05	1 45 " 1 70
Regina	45,300	11 60 " 12 25	1 60	9 85	1 75 " 2 40
Moose Jaw	3,845	11 45 " 12 35	1 50	9 75	1 70 " 2 50

* *Carbonizing and Briquetting of Lignites*, by W. J. Dick, Commission of Conservation, 1917.
† Owing to the exhaustion of the anthracite resources of the United States, these prices will increase year by year.
‡ Including profit of $1.00 per ton.

(2) United States bituminous coal is used from Farnham, Que., to Moosejaw, Sask. Although a considerable quantity is used in Manitoba and Saskatchewan, especially as locomotive fuel, these provinces are also supplied by coal from mines in Alberta, eastern British Columbia, and Saskatchewan.

(3) Coal mined in Alberta and in the Crow's Nest District in British Columbia supplies the markets of the Prairie provinces and Southern British Columbia. In addition, the Crow's Nest District, B. C., also exports to the States of Montana and Washington.

(4) Two-thirds of the Vancouver Island production is used in southwestern British Columbia and Vancouver Island. In 1916, about one-third of the output of these mines was exported to United States.

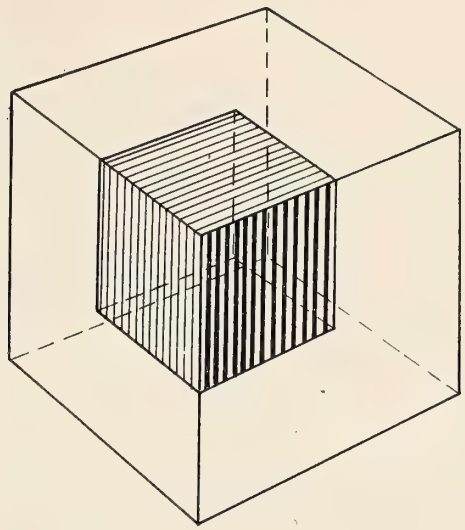
The following shows to what extent the above zones of consumption of Canadian coal may be increased:

(1) Nova Scotia coal. The production of coal in Nova Scotia has decreased from about 4,740,000 tons in 1913, to 3,552,000 tons in 1917. During the same period, industries in the Maritime provinces have increased their demands for coal. As it was not possible, in normal times, for Nova Scotia bituminous to compete with United States coal west of Cornwall, Ont., it is obvious that for some time to come, the zone of consumption of Nova Scotia coal cannot be extended further westward.

(2) The area extending from Montreal and Cornwall to Port Arthur is served with United States coal. The demand for coal, within this area, will increase unless electric energy, peat or other fuel be substituted.

(3) With especially favorable freight rates it would be possible, for western coal to supply the whole market as far east as Winnipeg. Such rates might, however, be so low as to be unremunerative to the railways. Fuel oil is used to a considerable extent as a locomotive fuel in British Columbia, but owing to the increase in the price, it will probably be but a short time before the railways will be forced to revert to the use of coal, thereby extending the market for Alberta, British Columbia mainland and Vancouver Island coals.

COAL RESOURCES OF THE WORLD AND CANADA



Small cube denotes coal resources of Canada.

Ontario Workmen's Compensation

Number of Accidents and Amount of Compensation in 1917 showed a Considerable Increase

The third year of operation of The Workmen's Compensation Act closed 31st December, 1917. The number of accidents and the amount of compensation show a considerable increase over the prior year.

The total amount of compensation awarded during the year was $2,913,085.81, as against $2,011,468.94 during 1916; the total number of accidents of every kind reported during the year was 36,514, as against 26,092 during 1916.

The increase is partly the result of increased industrial activity and partly of increased rate of wages, which automatically increases the workman's compensation. The most marked increases in compensation and accidents were in munition manufacturing in Schedule 1 and in operation of railways in Schedule 2.

The compensation in Schedule 1 industries amounted to $2,289,529.44, and the accidents reported numbered 30,701; the compensation in Schedule 2 amounted to $623,556.37, and the accidents reported numbered 5,813.

Of the total 36,514 accidents reported during the year, 454 were fatal cases.

The average number of notices of accident received each working day during the year was 126, and the average amount of compensation awarded each day was $9,071.

The total average number of cheques for compensation and medical aid now being sent out by the Board each day is 318, of which 106 are for medical aid, the latter amounting on an average each day to $1,036.

The amount of current year's assessments collected up to the end of the year was $2,392,340.42. This will be increased to the extent that the actual pay roll statements received from employers at the end of the year exceed the estimates given by them at the commencement of the year.

The rates of assessment for 1917 have proven generally sufficient, and, though some adjustments may be necessary, little if any general increase will be required in the rates for 1918. The rates on the average are still somewhat less than the rates originally fixed when the Act was first being put into operation in 1915.

Under a system of merit rating to be applied pursuant to an amendment made at the last session of the Legislature, employers whose accident experience is bad will be required to pay a higher rate than those whose accident experience is good. The adjustment will be made after the final accident experience of each employer for the year has been ascertained.

The total expenditure of the Board for administration expenses, including additional permanent equipment and other additional expenses rendered necessary by the new medical aid provisions of the Act, amounted to $133,629.50. Toward this amount the Government, in addition to paying the salaries of the Board and furnishing office premises, contributed during the year $100,000 in cash. This leaves only the sum of $33,629.50 to be borne by the employers, representing a cost to the employers of less than one and one-sixth per cent. of the amount of compensation awarded during the year. This gives them insurance at a very small fraction above actual cost.

Canada Must Organize for Post-War Trade

The Propaganda that is Now On—Trade Organization is Receiving Great Attention in Great Britain and the United States—Trade Organization in Germany

By JOHN C. KIRKWOOD

A PROPAGANDA for trade organization has been begun in Canada. At first this propaganda was unorganized, and was carried on by a few individuals. Now it will be organized and authorized—by the Canadian Industrial Reconstruction Association, with which Sir John Willison is associated. Also the Government is helping.

One of the first men to plead for trade organization in Canada is S. R. Parsons, President of the Canadian Manufacturers Association. Others who have joined their voices to his are Senator Nathaniel Curry, of Montreal; Colonel David Carnegie, member and ordnance adviser of the Imperial Munitions Board, and C. A. Bogert, President of the Toronto Board of Trade.

Perhaps the man who has succeeded most in getting an attentive audience is Colonel David Carnegie, who read a challenging and constructive paper at the annual meeting of the Canadian Mining Institute, held last month in Montreal. Colonel Carnegie also addressed the Canadian Club at Toronto a week later, and the press ever since has been giving the subject of his addresses not a little attention. So it may be taken for granted that trade organization in Canada will follow the work that has been and will be done to inform the public mind concerning the necessity for the organization of post-war industry and trade, and the methods and forms of organization.

I

Trade organization, as a term, is rather cryptic to the average person in Canada. Just what it signifies will be made clear later on. In the meantime, it may be said that to get a good understanding of what is meant by trade organization or organized trade, one must examine organized trade in Germany, in which country trade organization has reached its highest development.

Before proceeding to examine trade organization as found in Germany, it is instructive to note that both Great Britain and the United States are organizing strongly and intelligently for post-war trade, and that in these countries trade organization is being fostered by their Governments. These countries have been compelled to study Germany's trade organizations, and in both their policies and practices are being guided by German models. At the same time there is no intention to imitate Germany in every particular, for much that Germany has done and is doing for trade development is nothing short of devilish.

II

Before enquiring into the nature and objects of Germany's trade organizations, it seems desirable to sketch, in outline, the rise of Germany as a great trading nation.

Time was in Bismarck's day, in the early 70's of last century, when Germany was mainly an agricultural country. Then the Junkers or landed estate owners were supreme in the country's affairs. They constitute the nobility of the country. Then there arose a class of traders of energy and ambition, and this class has had the good-will and support of the present Kaiser. Even before the Kaiser ascended the throne of Prussia, he declared, in memorable words, "Our future is on the sea." Germany's mercantile marine, which, under Albert Ballin, has become a rival of Britain's mercantile fleet, grew out of Germany's ambition to be a great trading nation.

Germany's Rapid Industrial Development

The most notable period of Germany's trade expansion was the decade 1890-1900. The world has never seen an equal development in so short a time. Industry leaped forward amazingly. So tremendous was this industrial growth that the agricultural districts were drained to supply workers. In 1895, agriculture was represented by only 35.7% of the population. Ten years later, 50,000,000 Germans lived in the cities and only 17,000,000 on the land.

One consequence of Germany's industrial revolution and growth was over-production. The German mind exalts efficiency. To produce manufactures at the lowest possible cost became an obsession. Factories of colossal size, equal to the requirements of half a century, were built. Science was allied to industry, and helped greatly both to lower production costs and to augment production.

When German manufacturers over-produced—that is, produced more than could be absorbed domestically—they were forced to seek foreign markets. Necessity as well as ambition made Germany a world-trader.

German Success in World Markets

Producing on a gigantic scale, Germany was able to compete on better than even terms in foreign markets than many of her competitors; but even in cases where competitors were able to quote lower prices, German firms still sought and won business—by the simple expedient of a cut price. The agents or representatives of German firms were instructed to get orders at any price—the best price possible, of course; but at any price that would secure the business.

This policy meant, in many cases, heavy losses to German firms; but these losses were made good to them, by one method or another; for example:

The domestic price was raised, and so the loss on foreign orders was recovered from the German people.

The State made good the losses by the expedients of higher taxation, tariffs, freight rates; and from the moneys thus obtained, recouped foreign traders for losses incurred—

A bounty was granted on certain classes of exports, to enable exporters to compete successfully with the traders of other countries.

One consequence of these artificial methods of building up Germany's foreign trade was to make the cost of living in Germany very high. This high cost of living was contributed to further by newly-acquired habits of extravagance and luxury; which in their turn, led to recurring demands for higher wages; which demands, in their turn, increased the cost of production; which, in their turn, made it harder than ever for German firms to compete at fair prices in foreign markets; which, in its turn, led to a greater dependence on the State for assistance in getting foreign business. A vicious circle it may be called. Frenzied trade it has been called.

Add to these difficulties of Germany's exporting firms the continually stiffening competition of her foreign-trade rivals, and one begins to get some glimmering of some of the reasons

why Germany went to war—to crush her trade rivals, and to assure for herself abiding supremacy in world markets. Germany's trade conquest of the world was becoming a menace to the very existence of other nations.

Germany's Political Ambitions

This will be clearer when it is remembered that the German flag showed a tendency to follow the German trader. Where German trade became soundly established, there began German political intrigue. Perhaps Brazil is a sufficient illustration of this fact. In Brazil the nucleus of a German South American State was formed, but it required war to reveal Germany's plotting in that country. The story of the recent German machinations in Brazil does not require to be enlarged on here; it is commonly known.

III

We are now ready to understand and appreciate the better the matter of organized trade in Germany. We have seen how Germany became a world-trader and a most formidable trade rival of other countries. We have seen how the German Emperor identified himself with trade, and how the State fostered foreign trade enterprise. We have seen, also, how necessary it became for Germany to become a world-trader.

One of the early developments of Germany's foreign trade enterprise was the elimination or reduction of what may be called self-competition; that is, competition of one German firm with another. So Germany organized *Vereine*—export associations. These are almost innumerable. One of their objects was to assist representatives of German firms, by letters of introduction to German consuls and by other means, when they went to foreign markets.

Germany's Cartel System

Another feature of Germany's policy in foreign trade is the *Kartel* or Cartel. Cartels are syndicates of manufacturers, having various objects, some of which are:

To gather and disseminate information concerning trade conditions in foreign countries.
Studying and standardizing methods of merchandising, credits, etc.
The regulation of prices at which goods shall be sold in foreign countries.
The fixing of uniform prices; the regulation of output by individual members of the cartel; and the limitation or definition of the territory over and in which individual members may sell.
The collective purchase of raw materials.

Thus competition as between members is strangled or got rid of.

When war broke out there were over 600 independent associations of manufacturers, producers and business men in Germany, and about 5,000 subsidiary organizations.

Many of the cartels include in their membership trade associations as well as individual members (firms, persons, corporations). For example, the Association for Protecting the Interests of Germany's Chemical Industry has in its membership 290 manufacturing firms and 138 personal members; the Association for Protecting the Common Interests of German Electrotechnology has as members 125 of the largest firms in the electrical trade, including all the manufacturers of electrical specialties in Germany.

Cartels Are Not Trusts

The cartel differs from the American "trust" in that there is no pooling of capital, and no merging of identities. Also, as a rule, the cartel is organized for a stated period, at which it automatically dissolves, to be reorganized at the option of its former members.

The cartel is by no means an unmixed good, and it certainly takes away greatly from individual liberty. In its charter it may include an "exclusive agreement" clause under which buyers or customers may purchase only from members of the cartel; and producers of raw materials may sell only to members of the cartel, or may sell to non-members only at higher prices than to members. It will be seen that the cartel imposes a certain slavery on its members and on others.

Trade associations should not be confounded with the cartel. We have trade associations in Canada: the publishers of Canada are united in the Canadian Press Association; the manufacturers, in the Canadian Manufacturers Association; the hardware dealers of Ontario in the Retail Hardware and Stove Dealers' Associations. Even the farmers have their trade associations, such as the Grain Growers of the Western provinces.

In Germany a feature of the commercial and industrial fabric is the close affiliation between chambers of commerce, trade associations, and cartels. These several classes of organizations may and do join with each other in a mixed or pure way. For example, there may be a federation of chambers of commerce, or of trade associations, or of cartels; or a federation of all three classes of associations. Thus the League of Industrials includes in its membership a great many cartels.

The Objects of Trade Organization

The Central League of German Industrials is an organization of German manufacturers and has a membership of 200 associations and 600 individuals. Among other activities it has concerned itself with tariffs, labor, accident insurance legislation, and commercial treaties with foreign countries. It has issued directories of German exporting firms and has encouraged participation in foreign Expositions.

The inborn and directed tendency of the Germans to co-operate or syndicate is further exemplified by the German Industrial Council. This Council is said to form a connecting link between the Central League of German Industrials, the great association of the chemical industry, and the League of Industrials. Its plan is to bring about a close co-operation of all these organizations in an effort to recover Germany's lost foreign trade.

The German Hansabund

Germany's lighter manufacturing industries, commercial interests in general, artisans and small agriculturists, are federated in the German Hansabund. This federation comprises more than 700 provincial, district and local organizations throughout Germany, and has allied with it nearly 900 associations and other organizations. It is one of the most active commercial organizations in the world.

The Hansabund maintains a foreign section for the promotion of German export trade, with the aid of members resident abroad. More than 10,000 members were in attendance at a recent annual convention. It publishes a newspaper for its members; it issues confidential bulletins; it conducts a most active publicity campaign by means of lectures and a great volume of literature.

The Hansabund has brought about a closer alliance between German trade interests at home and German business men in foreign countries. It has a number of branches throughout the world, which are centres for the diffusion of

German influence. It has a political and economic platform, some of whose planks are:

Appointment to Government positions for merit only.
Elimination of red tape in Government business.
Penny postage.
Practical training for consuls.
Standardizing international bills of exchange, patents, trade marks, and corporation laws;
An international court of arbitration in civil affairs.

A Permanent Exposition Commission

Still another example of trade organization in Germany is the Permanent Exposition Commission for German Industry. This Commission co-operates with the German Government to represent the interests of all German industries at foreign and domestic Expositions. It aims to abolish participation in worthless or fake Expositions, and to encourage German exhibitors to participate in such Expositions as are found, by investigation, to be of value. The Commission has a special bureau for legal problems affecting the interests of exhibitors; it also maintains a special Colonial Committee to advance and protect the interests of German colonists at foreign and domestic Expositions.

International Trade Associations

Germany's world trade has been built up by special organizations such as the German-Brazilian Association, and the German-Russian Association for Fostering and Promoting Mutual Trade Relations. This latter association had, before the outbreak of war, 51 chambers of commerce, 12 associations, and 340 individual firms comprehended in its membership. It issued a publication for members, and maintained a department for the settlement of customs and freight difficulties, and a collection and translation bureau.

The Central Society for Commercial Geography and Promoting German Interests Abroad is another trade organization. Its objects are to promote intercourse between Germans living abroad and those at home, and to investigate prospects for the extension of German trade in foreign lands. It has a membership of 5,000.

A Parent Trade Organization

All the commercial and trade bodies of Germany are bound together by a single organization of great power—the Deutsche Handelstag. Through this body the business interests of the whole empire co-operate to further common purposes.

(NOTE: Much of the information given above, concerning Germany's trade organizations, has been obtained from Edward N. Hurley's book, "The Awakening of Business." Mr. Hurley was formerly Chairman of the Federal Trade Commission of the United States. His book has a purpose: namely, to assist the business men of America to work out sound methods of co-operation. Mr. Hurley's book can be read with profit by every Canadian business man.)

From what has been told of Germany's trade organizations one is enabled to see how that country forged ahead in her attempted trade conquest of the world. One perceives, also, how deficient Canada is in similar organizations, and how handicapped our manufacturers and exporters are when they attempt to compete in world markets.

IV

This article has been written to inform, and to impress upon Canadian business men that if Canada is to be successful in developing and enlarging her trade in foreign markets after the war, her traders must organize, even as the traders of Great Britain, the United States, and France are organizing, and as Germany is organized. Individualism of trading effort must yield to collectivism of trading effort.

Grants for Research Work

Copy of the Regulations Governing Assisted Researches Issued by the Advisory Council for Scientific and Industrial Research

There has recently been issued by Prof. R. F. Ruttan, chairman of the committee on assisted researches of the Advisory Council for Scientific and Industrial Research, a schedule of regulations governing the award of grants for research. The object of these grants is to assist chiefly researches which will aid in the development of Canadian industries, and any application for these grants will receive very careful consideration by the committee.

1. The recommending of the giving or refusing of grants by the Advisory Council shall be in the hands of a committee of three members of the vouncil, to be known as the Committee on Assisted Researches. This committee may utilize the advice and assistance of any persons inside or outside the council, who, in their judgment, may be of value in any application under consideration.

2. The applicant must give a brief statement of the proposed investigation, its scope, time required, results hoped for, total cost, grant asked, specific purpose to which grant applied for is to be put, evidence of ability to carry on the investigation, concise statement of adequacy of general equipment of laboratory where investigation is to be carried on. If the applicant has asked for or is receiving a grant from any other body, he must state this fact in his application.

3. Grants will, as a general rule, only be made to persons who are conducting investigations in established laboratories which possess the fundamental apparatus and facilities necessary for research of the nature proposed, and where the ordinary overhead charges are already provided for, and will not be made for the purchase of standard apparatus which a well-equipped laboratory should possess.

4. Grants made are to be for requirements for one year only, but further grants may be made annually.

5. Grants will be made only to persons who can show capacity for independent research, and who have a reputation for trustworthiness and responsibility.

6. Grants are to be made only for the actual expenses of investigation, but may be used in whole or in part for the payment of assistants, and are not intended to support the grantee while carrying out the investigation.

7. When a grant has been made for a specific purpose, it must be used for that purpose only. If the grantee desires to change in any manner the subject of his investigation he must make application to have the grant made available for the altered investigation.

8. All apparatus and materials purchased with grants are to be regarded as the property of the Advisory Council, and when the investigation is concluded are to be subject to the disposition of the council.

9. A report of progress is to be made annually by the grantee, or whenever called for, and, in every case, on the completion or conclusion of the investigation.

10. The grantee shall render annually, or whenever called upon, an itemized account of his expenditure, with vouchers. Such account shall also be made on the completion or conclusion of the investigation, and the balance of the grant required shall be paid over to the Advisory Council.

11. The grantee shall present a complete copy of the results of his investigation, before its publication, to the Advisory Council, who shall have the right of publishing it under their own auspices. When the grantee publishes his research, he shall make due acknowledgment of the assistance received from the council..

12. The council will give careful consideration to every application, but will not assign reasons for refusing to make grants applied for..

Manufacturers' Interest in Bank Mergers

Recent Amalgamations, Reducing the Number of Canadian Chartered Banks to Nineteen, Give Rise to Questions as to Whether or Not such Developments Are to the Advantage of the Industries of the Country

By H. M. P. ECKARDT

THE Canadian public appear to have accepted the recent extraordinary revival of the bank merger movement with a certain reserve. People in general dislike any movement of this kind towards centralizing in a few hands the control of credit-granting; and, further, there was general belief that the Parliamentary debates and newspaper discussion preceding the enactment of the revised Bank Act in 1913, to say nothing of the proviso then inserted in the Act—that a bank merger to become effective henceforth must receive the special permission of the Minister of Finance — had served to check the efforts of the large banks to buy up their smaller competitors. Lately they have seen, with some surprise, the Finance Minister yield his consent to three merger propositions in rapid succession. However, it is recognized that the war has created an entirely new set of financial conditions, which are the source of new perplexities, difficulties and dangers for the banks; and the reflective elements of the public are disposed to concede that possibly the changed conditions call for or justify bank amalgamations in certain cases. As it is usually not expedient for the Minister to divulge the details submitted to him by the parties desiring to amalgamate, the business community feels obliged to accept the assurances of the Government and of the banks that the transactions are in the public interest or that they are necessary for some other reason.



Head Office, Bank of Montreal, Montreal

By its coming amalgamation with the Bank of British North America, this century-old institution maintains its position of pre-eminence among Canadian banks

So far as bank depositors are concerned, it does not appear that their interests have suffered. In a case where a strong bank absorbs the business of one not so strong, the position of the absorbed bank's depositors is improved; and even when the absorbed bank is recognized as being solidly established, its depositors are no less secure when their balances are transferred to the keeping of one or other of the country's great banks. Sometimes these depositors have access, after the amalgamation, to facilities more extensive than previously possessed. Many people believe that the borrowing classes stand to lose more than they gain from the concentration of banking control. Now the manufacturers of Canada figure conspicuously among the borrowers depending upon bank credits for the means of carrying on their business; and it will be interesting to discuss the bank merger movement from the Canadian manufacturers' standpoint, with the view of bringing out the advantages and disadvantages.

Elimination of banking competition is usually rated as a disadvantage, from the borrowers' point of view—the theory being that with each decrease in the number of banks there is less competition for the accounts of manufacturers, merchants, etc., and that borrowers' chances of getting what they need are consequently lessened. Elimination of competition may also affect the relations of the manufacturer with his bankers in regard to the security covering the loans. When a considerable number of banks are competing with great eagerness for all the available business, the banks cannot press the point regarding security for loans beyond a certain distance. This applies, of course, to their dealings with customers whose accounts are in shape to be taken up at once by competing banks. In such cases wherein the banker wants more security than the customer is willing to give insistence by the former on his demand may lead to the loss of a valuable account. On the other hand, if there are only a few banks to which borrowers may apply, these banks not being in very keen competition, the bankers are likely to hold more firmly to their position as regards strength of collateral. Providing their demands are not unreasonable this attitude of theirs may not be disadvantageous, in the end, to the customers. It is clearly in the interest of Canadian industry to have the bank loans to manufacturers on a sound basis. The point should be remembered that the margin of profit earned by a bank does not enable it to take the risks in granting credit which manufacturers and merchants may safely assume. In case of loans and discounts at six per cent. the bank's margin of profit is probably not more than from one-and-a-half to two per cent. per annum; whereas manufacturers and merchants are accustomed to a much larger ratio of profit on the amount at risk, and they can, therefore, afford to take more chances. On completion of the mergers recently announced there



Sir Frederick Williams-Taylor
General Manager, Bank of Montreal



Charles Ernest Neill
General Manager, Royal Bank of Canada

Bankers Who Figured in Recent Amalgamation Negotiations

will be nineteen chartered banks operating in the Dominion. Four of these have total resources less than $25,000,000; nine others have assets exceeding $25,000,000, but less than $100,000,000; four others have resources exceeding $100,000,000, but less than $150,000,000; and the big three at the head of the list are in a class by themselves—two of them being well above the $300,000,000 mark, and the third will count up something like $470,000,000. The first thing to observe, in connection with this recapitulation, is that there is still room for considerable competition. Of banks with total assets in excess of $50,000,000 there will be thirteen, each one being vigorously intent upon getting its share of desirable new business, and each one having resources enough to carry pretty large manufacturing accounts. A large manufacturer would probably get a hearing for his proposition at any one of these thirteen head offices; and if any one of these banks decided that the manufacturer's account would be safe and profitable, and that the amount of credit applied for was within the bank's capacity to grant, it would not hesitate to take over the account even from one of the big three. If the bank taking over a big manufacturer's account has no branch established in the neighborhood of his plant or head office, it would open one expressly for the purpose of transacting his business.

In this way the large manufacturer in good standing, even if located in a small city or town, has potential access to a considerable number of banks. The small manufacturer, if located in one of the larger cities where from eight to fifteen large banks are represented, is in much the same position. So, in both of these cases it might be said that the mergers have not created disadvantageous conditions. The case of the small manufacturer in one of the lesser towns, whose business is not large enough to induce a strange bank to open a branch there, is different. There may be three banks represented in his town. He, therefore, has, or thinks he has, two places of refuge available in the event of his having a decided difference with his own bank. A bank merger comes along resulting in the amalgamation of two of these branch offices, and then he has only one place to which he can go. If another merger occurs, causing the combination of these two offices, he has no choice at all. In pre-war days this state of affairs would not likely happen—for if two of the three branches in a good live town were consolidated, another bank would promptly open there in hopes of getting a line of customers who did not wish to be handed over to the absorbing bank. But during the last year or two the banks have not been in position to open new branches unless under exceptionally favorable conditions. It is in the smaller places that the mergers are most likely to meet the disapproval of the customers. In a town with only two banks represented, customers may have left the branch of Bank A because they could not get along amicably with its local manager. Perhaps Bank A purchases Bank B, which owns the other local branch. Then these dissatisfied customers are perhaps delivered into the hands of the manager from whom they broke away.

However, while these considerations have much to do in influencing public opinion they are in certain respects of minor importance. The mergers promise to be advantageous in some ways for the manufacturing interests. It is to be noted that manufacturers are well represented on the boards of nearly all of the important banking institutions; and practically all of these banks are conversant with the peculiar needs and circumstances of the various lines of Canadian industry. This ensures that the credit requirements of each class will receive intelligent consideration. As regards each line of activity, the bank will probably have had a long experience

in financing manufacturers engaged in this line; and it may have in its directorate one or two men who know the business thoroughly in all its ramifications.

When one considers that Canada's exports of manufactured goods in 1917 attained a value of $682,000,000, as against a yearly export of around $60,000,000 in pre-war times, it becomes clear that the financial requirements of the concerns chiefly responsible for this enormous expansion have grown with great rapidity. The bankers of these great companies must stand ready to pay out vast sums at their behest. There are huge amounts to advance in connection with purchase of raw material, fuel and for wages; and perhaps large operations in foreign exchange will be necessitated. Then, when their customers have completed the contracts and shipped the goods, the bankers have been obliged to finance the contract settlements through taking and holding relatively large amounts in British or Dominion Government obligations. For work of this kind large banks are essential; to safely carry these large transactions there must be assets in great bulk. It is contrary to sound banking principles for a commercial bank to tie up its resources to an undue extent in any one security or investment; and there is no doubt that the ability of many of our banks to grant credit to their ordinary customers has been impaired as a result of the large amounts of special securities which the war has forced into their hands. Concentration is a remedy for this, especially when it is brought about through absorptions by large banks having a relatively great amount of free assets, perhaps in the form of reserves at the international centres.

As the executive officers of all our banks have been trained in the same school, and as their policy in handling manufacturers' accounts is based on the same general rules or principles, there is necessarily a remarkable sameness in the requirements which their borrowers are asked to meet. Thus a manufacturer in search of credit might conceivably apply to several banks in succession, and, because of some defect in his position, all of these requests may be denied. If not disposed to look at the matter fairly, he may conclude that his non-success was due to the concentration of banking control which worked to prevent one banker from taking up a proposal that had been turned down by his neighbor with whom he acts in co-operation. It is quite likely that the recent merger movement, together with the enforced employment of banking resources in Government loans, will have a tendency to cause the banks to adhere more strictly to the general rules which are supposed to govern manufacturing accounts. It may be well, therefore, to explain briefly a few of the main principles which are accepted as guiding rules in Canada and elsewhere.

First of all, the bank credits to a manufacturer should be based on liquid assets. Nothing is more highly prized by a banker than short date trade paper drawn by a strong manufacturer upon trade debtors who pay their bills at maturity. However, Canadian manufacturers usually require direct loans as well—the cash capital probably is not large enough to enable them to finance operations to the point at which goods have been sold and shipped. In case of direct loans, good marketable bonds, such as the Victory Loan, always constitute acceptable security; but bonds not having a steady market in Montreal, Toronto, London or New York, are not so readily taken. Loans on raw material under section 86 or section 88 of the Bank Act, have a steady vogue—it being required that the raw material shall be a "cash" commodity. Of course the loans under section 86, wherein the goods are in custody of a responsible independent warehouseman, are considered better than loans on the borrower's own pledges under section 88; but in many cases the circumstances are such as to make the independent warehouse receipt impracticable, and so the "own pledges" are perhaps more in evidence. In connection with these it is not counted a favorable factor if the borrower has large outside liabilities. Pressure from other creditors might strain his honesty to the point of utilizing some of the goods, pledged to the bank, for the purpose of paying off these claims. Then, the direct loans, on pledged goods, are to be succeeded in due course by approved trade bills or cash proceeds of sales. Another important point is that proceeds of bank loans should go for purchase of raw material, fuel and for expenses of manufacture—not into plant or equipment. The manufacturer is supposed to acquire his plant and equip it with his own capital. It is not considered proper that bank deposits repayable on demand should go into long-winded loans on fixed property. Finally, direct loans on raw materials and materials in process, should be cleaned up when the relative products are sold. While these are taken as guiding rules, there are exceptions, especially in periods during which banking competition is keen and strong.



Royal Bank Headquarters

The Royal's absorption of the Northern Crown Bank was a recent important event in the banking arena

BAD YEAR FOR FOREST FIRES

The danger season for forest fires is near at hand. Rapidly drying soil has left the old grass, brush, leaves, etc. in most perilous condition for starting fires.

An effort is being made by the fire rangers to keep down the forest losses this year to a minimum. They will succeed only if every camper carefully extinguishes his camp-fire before leaving it, if every smoker refrains from tossing away burnt matches or tobacco in or near a wood, and if settlers in the newly-opened districts guard their land-clearing fires with the utmost care. Settlers' fires continue to be the very worst source of forest conflagration.

"The fire rangers," says the Canadian Forestry Association, "want every good citizen to regard himself as a deputy ranger from now until November first.

"A Canadian forest was never worth so much as to-day, never gave so many jobs as to-day, never put money into circulation as it does this year."



Show Room of a Japanese Warehouse in a Canadian City

The attendants are all Japs, while the goods shown exhibit a great deal of variety and manifest a desire on the part of the makers to adhere to Canadian standards

Japan's Commercial Invasion of Canada

The Story of How the Merchants and Manufacturers of the Flowery Kingdom are Making a Deliberate and Successful Campaign to Introduce Many Lines of Japanese-Made Goods Into the Dominion

By EDWARD W. REYNOLDS

WAR has turned the tables on Oriental trade. Instead of a steady flow of manufactures and general products from Occident to Orient, the tide is just the reverse. Never in the industrial history of any nation or set of nations has such a tremendous development taken place in a country's trade as in that of Japan. Nations exhibit much natural pride over the excess of exports over imports, but alongside of Japan's favorable trade balance, other balances pale.

But this is not the most important, or most significant feature of this unusual development. America's—United States and Canada's—trade balances have been very largely caused by the shipment of millions of dollars' worth of munitions to Europe during the war period. Japan's excess of trade, or, to use a more accustomed term, favorable trade balance, consists of increasingly large exports of staple products, goods that find a place in every market, commodities that supply a much-felt want, and earn a permanent place in the market they enter. When war is over, and the countries commence their commercial and industrial reorganization, Canada will have to put every ounce of energy behind the effort to replace munitions with staple products. The factories will have to work hard and long. Merchants will have to seek all kinds of credit, after having sought out the customers. In short, the reorganization of industry will take the form of a commencement of an industrial era, because everything will have to be on an entirely new and unprecedented basis. Things will be different for Japan. Her merchants have already established themselves in the foreign markets. There is already a big demand for their goods. The desired credit is already there. All that Japan will need to do is "carry on."

The writer has discussed these questions with at least three very influential Japanese merchants, and their opinions make interesting reading. Japan's industrial expansion has been as deliberate as it has been successful. Japan's plan of campaign, and it is a commercial "campaign," is straightforward, above-board, but withal aggressive and persistent.

"Japan is determined to become a powerful commercial entity; every aim and effort is bent on that purpose," declared one prominent Japanese merchant visiting Toronto recently." Heretofore the powerful European concerns have had their resident managers in the Orient, and have reaped huge profits from their transactions. Now Japanese merchants propose handling their own business, and entering into legitimate competition with those European houses located in Korea, China, Siam and Japan. We have developed our industrial, commercial and financial machinery along European lines, and are able to meet our competitors on a common ground. We aim to deal direct with our own customers, and so establish commercial connections that will have a permanent value.

"Here is a case in point. For many years Japanese goods have been sold in Canada, but through the medium of United States houses. We want to deal direct with Canadian business men, and, although the condition of the shipping world is against us keeping up direct intercourse with Canada to the extent we would like to, we have so developed our organization, and so created a need for Japanese goods, that when

conditions are righted we will send direct to Canada. Tremendous quantities of Japanese goods are already being sold in Canada, but the Japanese merchant wants to do the business himself direct."

And in developing trade connections with Canada, Japan has departed from the usual custom of appointing trade agents at strategic points. In the judgment of Japanese trade experts, the appointment of trade agents in a country like Canada is not the most successful means of establishing trade connections, although its efficacy as a means of retaining trade connections is admitted. At very frequent intervals during the past three years, Japanese commissions, consisting of one, two or three merchants, have passed up and down the country obtaining first-hand information of the immediate needs, prevailing prices, how the goods ought to be packed, and the best possible means of getting delivery. Not a detail was overlooked, so that when these gentlemen went back to Japan, or perhaps over to some American point, they were able to impart valuable trade information to their houses, and the result was that customers were speedily obtained.

Further, they resorted to all kinds of means to refrain from imposing Japanese methods and customs upon Canadian buyers. Their merchants and business men speak fluent English, and are very well informed on Canadian conditions. They understand the coinage, the methods of invoicing, creation of credits, rates of exchange, bills of lading. Indeed, to all intents and purposes they are Canadian merchants, everything is done to encourage the interest rather than to arouse the prejudice of the customer. It is a splendid object lesson to Canadian exporters, who largely contend that all they have to do is to send keen-witted salesmen overseas and the goods will naturally follow. If a Canadian house wants to do business in Spain, Italy, France, South America or elsewhere, the measure of its success will be according to the steps it takes to adapt itself to the conditions in the particular country in which it would do business.

Government Controls Delivery

When the Japanese merchant has sold his goods to the Canadian buyer, delivery of the consignment is absolutely at the discretion of the Government. Japan is very jealous of its reputation. Once a trade connection has been obtained, that merchant must do everything reasonably possible to retain it. A heavy demand for a certain commodity is no reason why any laxity shall take place in composition, appearance, make-up or packing of the goods. It must reach the last stage of perfection according to its grade, otherwise it cannot go overseas. When a merchant has prepared a consignment from Yokohama, or some other Japanese point, he must notify a Government inspector or agent, who examines the goods and passes on their perfection. If he is not satisfied they go back to the factory, and the merchant must prepare another shipment for his customer. In this way the merchants have been taught to do everything perfectly, and Government inspection has so guarded against the shipment of inferior goods abroad that the Canadian and American buyers can always rely on the goods delivered to him being up to the standard and perfection of the sample.

Few people apparently realize the wide variety of Japanese goods being sold in Canada. The general belief is that Japan is a simple producer of carnations and kimonos, and the chief occupation is the breeding of silk worms. That is far from the fact. Japanese trade expansionists seem to have been dominated with the idea of discovering the universal need, and supplying it. No article is too insignificant for the manufacturer to interest himself in, and no article is too big or complex for the Japanese merchant to handle.

In this connection, some very interesting information is at hand. When the significance of the British blockade of Germany was beginning to impress itself upon the rest of the world, Japan had already understood what the loss of German trade to Germany meant to other nations. The Japanese lost no time. While their army was fighting for Kiao-Chou, to wrest political dominance in China from Germany, Japanese merchants were locating in China and visiting all parts of the world, discovering markets that had been shorn of needed commodities that heretofore came from Germany. In this way the Japanese industrial world has been able to place goods in a market just where they were and still are needed. They have copied, and indeed improved upon the German product and given every satisfaction to the customer. What is more, they have been able to undersell the German merchant. Labor and raw materials are so cheap in Japan that the Japanese merchant can undersell almost any merchant in his own market.



Yoshio Iwate, Consul-General of Japan, in his office in the Consulate at Ottawa, with C. Umeda, his secretary in attendance

This condition of affairs applies to Canada in a marked degree. "We have singled out Canada as a special object of our trade expansion movement," declared another merchant. "We manufacture so much that Canada needs. When the war is over, Japan will have its own direct line of steamships connecting Yokohama with Vancouver, and we will do a tremendous trade with the Dominion."

The Japanese may place a different interpretation upon the term "tremendous" than do the Canadians, as the trade already done in Canada reaches large proportions. The Japanese Department of Agriculture and Commerce—Noshominsho—is in possession of the most complete information of the kind of goods needed in Canada, and what Canada cannot obtain because of the British blockade of the enemy nations. For instance, when war broke out Canada lost certain supplies of chemicals used in refineries and mining. Japan was soon able to supply the need. Then when it was discovered that German china was unobtainable, and the British did not take advantage of the situation, Japan worked over-



Fabrics of Japanese Manufacture in a Warehouse in Toronto

time to supply the need. The result is that tremendous quantities of Japanese chinaware are being shipped to Canada; in fact the potteries cannot fill all the orders sent to them, and they work under extreme pressure.

Some of the specimens of Japanese chinaware on sale in Canada show an unusual degree of perfection. Naturally the high-grade ceramics are still being made in Britain, but the cheaper kinds, chiefly those that provide the biggest margin of profit, come from Japan.

Recently two business men were discussing the merits of certain materials in a Toronto warehouse. One picked up a well-finished umbrella. He naturally selected it as a good specimen of French make.

Taking Europe's Place

"I see the French are still shipping silk umbrellas to Canada," said he. "Oh, no!" was the reply from his friend, "that came from Japan," and so this could go on through a wide range of materials. What Canada cannot get from Europe, she has reasonable assurance of getting from Japan. In truth, many goods come from Japan that could be made in Canada.

A close study of the trade returns between Canada and Japan brings out a very important fact. It is this, that while the shipments of manufactured goods across the Pacific to Canada have increased by leaps and bounds, the shipment of raw materials from Canada to Japan have decreased. There is an old trade dogma that states, "It is far better to ship goods out than bring things in." Japan works this overtime. She appears to trade mostly in goods that bring the highest profit. Japan has copied the German plan of manufacturing for home consumption, and making for export a large number of products out of the by-products, which she ships abroad. This is mostly "velvet" to the exporter. It also keeps up a very valuable trade balance.

Foreign Trade of Japan

According to the latest figures issued by the Japanese Department of Agriculture and Commerce, the total foreign trade of Japan up to the end of December, 1917, was 2,777,431,000 yen. The exports amounted to 1,683,780,000 yen, and the imports 1,093,857,000 yen, so that the excess of exports over imports is 590,023,000 yen. These figures constitute a record, and compared with the same period of last year, when the prosperity of Japan's trade was thought to have reached its zenith, the total result shows an increase of 723,649,000 yen, or 40 per cent. In exports the increase was 462,947,000 yen. Some idea of what expansion has taken place is gained from a glance at the following table, covering the years from 1912 to 1917 inclusive:

Year.	Exports—Yen.	Imports—Yen.
1912	562,982,000	618,992,000
1913	642,460,000	729,432,000
1914	591,101,000	595,736,000
1915	708,307,000	532,450,000
1916	1,127,468,000	756,428,000
1917	1,683,780,000	1,093,857,000

The latest returns of Japan's exports to Canada show remarkable increases. Some have jumped as high as 1,500 per cent in two years, and the comparisons make interesting reading for those interested in Canada's commercial relations with other countries.

In 1913 the value of the glass goods shipped to Canada, chiefly those known as "blanks" to be cut or mounted, amounted to $123. These exports to Canada increased as follows: 1913, $123; 1914, $338; 1915, $115; 1916, $4,246, and 1917, $16,483. It is a record any country would be proud of. To increase some exports 1,430 per cent. in two years is a big accomplishment.

Increases in Many Lines

The export figures covering gutta percha products are somewhat similar, and go to demonstrate the hold Japanese manufactures are getting in Canada. In 1913, Japan exported just $14 worth of gutta percha, and manufactures of gutta percha to Canada. In 1914 these exports increased to $19, a year later to $237, in 1916 to $833, and in 1917 to $23,195.

Take the Japanese iron and steel exports to Canada during the past five years. In 1913, these were valued at $1,854; 1914, $2,931; 1915, $1,752; 1916, $1,688, and in 1917, $23,983.

Since it was found impossible to import certain shapes of lamps, shade-holders, fixtures, etc., Canadian buyers turned to the Japanese for assistance, and the manufacturers are beginning to supply the need. In 1913, just $396 worth of

lamps, etc., were shipped to Canada. These increased to $5,004, by 1916, but a year later the value of these importations into Canada went up to $14,773.

A peculiar contrast is given in the figures covering paint and color importations; in 1913 they were valued at $15; in 1914, $4; in 1915 $1; in 1916, $30, and in 1917, $2,986.

Silks and fabrics are a feature of Japanese-Canadian trade relations, and here the figures loom larger, although they do not give wider significance of the way Japanese merchants are getting hold of Canadian trade. In 1913, the total imports of Japanese silks were valued at $360,726; in 1914, $377,219; in 1915, $378,793; in 1916, $1,006,434, and in 1917, $2,016,001.

Even such items as show-cases and such piece of furniture needed in stores and offices are coming into Canada from Japan. Five years ago $7,217 worth of show-cases, etc., came in from Japan. The figures were increased to $10,819 by 1915, and last year they were totalled at $35,220.

Such more or less insignificant items as towels are also demanded from Japan, and the figures covering these imports are indicative of the growth of trade with Canada. Up to 1916, only a thousand dollars' worth of towels were imported from Japan, but in 1917 $29,868 worth of towels were brought into Canada. Indeed, the total cotton imports give further striking examples of trade development; in 1916 just $77,479 worth of cottons were imported; and in 1917 $169,036, a remarkable showing for a year's development.

Part Played by Fancy Goods

Earthenware, ironware, porcelain, from Japan is also in big demand. In 1915, the imports of earthenware from Japan were valued at $75,964; last year they were valued at $250,743. Big increases also characterized the imports of white granite and ironware; in 1916 they were $96,900; last year they were $231,322.

The imports of fancy goods also show remarkable increases. They are as follows:

1913.	1914.	1915.	1916.	1917.
$34,264.	$46,614.	$41,249.	$80,795.	$209,753.

Toys also play a large part in these trade increases. In 1916, $66,905 worth of toys were imported from Japan, a year later these imports were increased to $179,465.

Continuing on down throughout the lists, it is discovered that such items as grain products were increased from $85,109 to $311,265 in four years. The value placed on beans brought into Canada from Japan in 1913 was $67,612; in 1917 these imports were valued at $290,019. Such necessities as buttons also figure very prominently in the lists; in 1913 the imports were valued at $27,588; in 1916 they were $66,119, and in 1917 they ran up to $170,587. Dyed fabrics also run high. Just 74,266 yards were imported; in 1917 they were increased to 170,972 yards.

It has been often said that "it is an ill wind that blows nobody good." War has had a disastrous effect upon the Indian tea trade. "British-grown" teas have been almost at a premium; this is where the Japanese tea-grower has reaped a harvest. Despite the distinct preference in Canada for British-grown teas, the imports of tea from Japan have been on the up-grade. They are as follows:

1913.	1914.	1915.	1916.	1917.
$741,084	$562,971	$718,823	$980,404	$1,060,246

The grand total of dutiable goods imported by Canada from Japan is as follows:

1913	$2,118,146
1914	1,463,970
1915	1,301,992
1916	2,177,946
1917	6,094,235

It will be seen that the imports dropped nearly one hundred per cent. the year war broke out, and it took two years for the Japanese merchants to get back to their former position; yet in one year the total Canadian imports from Japan jumped from $2,177,946 to $6,094,235. It is an earnest of what the future holds in store for Japanese trade development in Canada. Such figures as these tell a simple but very forceful story of Japanese growth. While other nations are at war, Japan has worked insistently and persistently to get control of foreign markets. She has succeeded. What will Canada do in the months and years to come?

New Japanese Liners

Two Fine Vessels Are Being Placed in Commission for the Trans-Pacific Route

Two new passenger liners, the steamships *Africa Maru* and *Arabia Maru*, which were completed recently in the yards of the Mitsui Bishi Company, in Nagasaki, for the Osaka Shosen Kaisha, have been assigned to the Victoria trade and will arrive in this port on their maiden voyages in April and June, states the *Victoria Colonist*. News of the decision of the higher officers of the O. S. K. to place the carriers on the trans-Pacific route was received by local representatives of the company.

The *Africa Maru* will sail from Yokohama, March 28, and is due in Victoria on April 10. She will replace the *Hawaii Maru*, which has been assigned to the South American trade, and sailed recently on her initial voyage to Buenos Ayres.

Captain J. Kanao, who was master of the *Hawaii Maru* when she was plying in the Puget Sound trade, has been appointed operating superintendent of the Osaka Shosen Kaisha in Osaka, Japan. Capt. Y. Yamamoto has been appointed commander of the *Hawaii Maru*, succeeding Captain Kanao. It is expected that Capt. Y. Saito, one of the veterans of the fleet, will be appointed master of the *Africa Maru*.

The steamship *Arabia Maru* is due in Victoria in June on her maiden voyage in the trans-Pacific trade. She will replace the *Panama Maru*, which has been transferred to the South American route.

The *Africa Maru* and the *Arabia Maru* are vessels of the same type as the *Hawaii Maru* and the *Manila Maru*, both well known in this port. However, the new liners have accommodations for twenty-six more cabin passengers than the *Hawaii* and *Manila*.

Will Can Whale Meat

Fifty Thousand Cases Will be Put on the Market This Year by the Victoria Whaling Co.

The whaling season on the Pacific Coast opened on March 27, two of the eight vessels composing the fleet of the Victoria Whaling Company sailing north on that day. All the eight vessels will work from the stations belonging to the company on Vancouver Island and the Queen Charlotte Islands. The whaling fleet at Gray's Harbor, Washington, which is owned by the same corporation, has also left its winter quarters.

The Victoria Whaling Company expects this season to account for more whales than they have in any other year, even exceeding 1917 which was their record season. Whale meat, which was on the Victoria market last year, will be canned by them this season, their new cannery at Kyuquot, which will be opened in a week or two, being prepared to place at least 50,000 cases on the market during 1918.

Results of Workmen's Compensation in B.C.

Operations of the Board Extended to Approximately 75,000 Workmen Engaged by Six Thousand Employers or Employing Firms Having a Combined Payroll of Approximately a Hundred Millions

DETAILS of the work of the Workmen's Compensation Board of British Columbia for the first year of its existence have been presented to the Provincial Legislature in the form of the first annual report of the board. For the year ended December 31 last there was a total of 12,684 accidents reported to the board; deaths from accidents numbered 217 and the average monthly accidents were 1,140. The operations of the board extended to approximately 75,000 workmen engaged by 6,000 employers or employing firms having a combined payroll of approximately $100,000,000.

Under the system of assessments levied by the board upon the various classes of industries and under the classification as to the hazardous nature of the employment there was collected a total of $939,869. There was paid out as compensation to victims of accidents $358,227 and there was set aside for reserve to secure pensions the sum of $351,777. The balance was set aside for the purpose of paying pensions to dependents whose claims have not yet been satisfactorily proved and for the payment of permanent partial disability cases not yet surgically cured, etc. The amount collected from workmen under the medical aid clause was $93,094 and the amount expended on physicians, hospitals and for other treatment was $93,189.

Cost of Administration

The report stated that the total cost of administration for the year including salaries, travelling expenses of auditors, members of the board and other officials was $46,215, and cost of permanent equipment was $9,614. Administrative cost was 5.97 per cent. and as Government contributed $10,000 towards administrative cost, the actual cost to the industries affected is given as 4.94 per cent. of the moneys levied on assessments.

From 1,000 to 1,300 accident cases are generally pending until reports can be received or until the necessary time in which to enable workmen to receive payment has elapsed. The average time for the adjustment of a case is stated to be seven days after all required information is supplied. From the information supplied to the board it was shown that last year the average daily wage of a workman throughout the Province was $3.61.

The financial side of the board's operations is dealt with, it being stated that the surplus funds were invested in approved securities as follows: $300,000 of provincial 5 per cent. bonds purchased at $261,842.05; $25,000 5½ per cent. Victory Bonds for $24,776.99.

Commenting editorially on the report, the *Victoria Colonist* has the following to say, both in commendation and criticism, of the first year's showing:

"The first annual report of the Workmen's Compensation board has been published, and from the statistics it appears that if the law continues to be operated on the present basis it will, in the course of time, lead to the building up of a fund far beyond the needs of this governmental insurance scheme. It is well this fact should be recognized at once so that needed amendments can be made to the Act. The total amount of assessments received from industries during 1917 was $939,869.97. Compensation claims paid for accidents during the period amounted to $358,227.37. Of the balance there has been set aside a sum of $351,777.24, which is to be a reserve to secure pensions. This leaves a sum of $229,865.36, out of which must be deducted $57,830.07, which was the cost of administration. The balance of $172,035.29 is nebulously described as being retained for the purpose of paying claims to dependents whose claims have not yet been satisfactorily proved, and for the payment of permanent partial disability cases not yet surgically cured. Thus there is a sum of $172;035.29 set aside for dealing with 1,417 cases that came in during the month of December, whereas the amount necessary to satisfy the 11,267 claims for the other eleven months of the year was only $358,227.37. This is one point of the report which requires considerable elucidation.

Large Reserve Set Aside

"Of the total accidents during the year 217 resulted in death. Probably the widest interpretation of the Act would not allow for more than an average of $30 a month being paid to the dependents of these unfortunate men, which would mean $78,120 for a year, and yet we find the board has set aside a sum of $351,777.24 as a reserve to secure pensions. This year it will be possible to set aside a larger reserve, and so on as the Province grows unless some tremendous disasters occur which will make large incursions on the reserve. This is a contingency that must be provided for, but it appears, even in its initial operations, that the board is securing a far larger revenue than the risks of employment in British Columbia warrant. It has been in a position already to invest $300,000 in British Columbia bonds, whereas it has only thought it advisable to buy $25,000 worth of Victory Loan Bonds, although obviously its duty at this crisis was to invest in the latter to the limit of its resources.

"The point in the Board's operations which will arouse most criticism is the cost of administration. It will be noted this was $57,830.07, of which $9,614.68 was for equipment, which, of course, will not be incurred in future years, unless the board decides to locate in more palatial offices. The actual cost of administration was $48,215.39 which, we maintain, is altogether too costly in a Province of this size. In Manitoba there has been a commission of inquiry into the operation of the Workmen's Compensation Act there. Manitoba has a population half as large again as British Columbia. It was found there that the total cost of administration should be $26,000 a year. This, it was proposed, should be divided as follows: two directors, $2,000; one commissioner, $6,000; one secretary, $3,000; one inspector, $2,100; one medical officer, part time, $1,500; accountant, claims clerk and general office staff, $6,640; rent, etc., $4,760; total, $26,000. It was further pointed out that guarantee bonds should be given by the commissioner, secretary and accountant. It has been found, after a searching inquiry, that Manitoba can administer her Workmen's Compensation Act for $26,000 a year, so there can be no possible reason why a similar Act in this Province should cost approximately twice as much.

Income Above Normal

"It was found in Manitoba, as it will be found here in the course of a very short time, that the income of the board is above normal. It was found that the space leased for offices was double what was required; that economy was not practiced in purchasing equipment, and that there was a lack of organizing ability on the part of the administration; that the staff was unduly large, and that salaries were out of all proportion to the work performed. Although still in its infancy, very many of the same tendencies to extravagance can be noted in the British Columbia board. The most important point of all is the basis of compensation, which, if the present rates are to prevail in this Province, should be increased. It seems that it would be advisable to amend the Act so as to make at least 65 per cent of the wages of a workman injured the basis of compensation instead of 55 per cent. as at present. In Manitoba workmen are asking that the basis should be 75 per cent., and they also ask that the compensation payable to the widow and children of an injured

man should be double the present rates of $20 a month for the widow and $5 a month for each child.

"It will be contended, no doubt, that as the board here has been only operating for a year it is still on trial, but it must not be forgotten there are even now, very definite and legitimate objections to the rates of assessments, especially on occupations in which the risk of accident is of the slightest. There is no warrant for the heavy expense of administration, and steps should be taken to effect reductions without delay. The Board will not have to build up a reserve fund beyond a certain limit, for the revenue each year will be continually creating funds over and above the satisfying of current claims, and these can be devoted to the payment of pensions, being augmented for that purpose by the reserve fund, which can be built up slowly to meet all requirements. The figures published in the report no doubt are perfectly satisfactory to the Board. From the public standpoint they present features which call for rectification in the interests of economy in administration and justice to the workingmen and employers."

Workmen's Compensation in New Brunswick

Report of the Commission that was Appointed Last Year to Consider the Operation of the Ontario and Nova Scotia Acts in Regard to Their Applicability to the Province of New Brunswick

THE report of the New Brunswick commission on workmen's compensation was presented to the Provincial Legislature at the present session of the House. It was as follows:

To His Honor the Lieutenant-Governor in Council:—

Your Honor:

We have the honor to present to you the conclusions at which we have arrrived with regard to the operation of a workmen's compensation law in this province.

The order-in-council of January 3, 1917, authorized us to consider the operation of the Ontario and Nova Scotia Acts, in their respective areas, in regard to their applicability to this province. This was enlarged by the Legislative Assembly at its last session, and further power given to us under Chapter 35 of the Acts of this province, passed in the present year of His Majesty's reign. The consideration of these Acts necessarily led to a greater or less degree, to the consideration of other Acts in Europe, Australia, New Zealand, the United States and South America.

Common Law Liability

Before proceeding to discuss these, it may be well to explain fully, in express terms, the common law liability, as between the employer and the employe. Under the common law the employer is liable to the employe for certain injuries sustained by him in the course of, or arising out of the employment. This principle of the common law was enforced against the employer, but subject to three defences, which may be stated as follows:

First: Negligence on the part of the employe.

Second: The doctrine of common employment, which, shortly stated, means that if one employe is injured by the act of a fellow-employe an action would not lie against the employer.

Third: What is called the doctrine of the assumption of risk, wherein the employe was assumed to know the hazard upon which he entered, and therefore by accepting money for his services he contracted himself out of the liability by the employer. That, we think, is the common law doctrine. This, however, was modified by the passing in England of Lord Campbell's Act, which was re-enacted in this province and which may now be found in the Consolidated Statutes, Chapter 79. The effect of this Act was to vest in the heirs of the injured person the right of action against the employer. At common law the right of action died with the death of the injured man, this statute gave the right to the injured man's heirs to proceed against the employer. There is, therefore, the common law right to consider, which we may discuss in this way; the liability of the employer to the employe, subject to the defences which we have suggested above, and enlarged by Lord Campbell's Act.

In the year 1884 legislation was implemented in Germany by which the common law doctrine of that country was varied, and the Workmen's Compensation Act was passed. This was followed by Norway in 1887, and successively by nearly all the European nations, as time went on.

Principle Widely Accepted

In point of fact there are 46 nations or peoples in Europe and portions of the British Empire, as well as in South America, which have accepted the principle of workmen's compensation. Turkey is perhaps the one European nation which has not yet passed legislation of this kind. In America and Canada during the last seven years about forty Acts have been passed which adopt the principle.

Let us consider this principle. It means that there shall be fastened upon the industry in which the workman is engaged the hazard of that industry. Or 5 per cent. of the assessment, of the workman to be compensated, and the liability of the employer to pay assessments of some sort in order to meet his liability. So that the modern doctrine would seem to run in this wise, that the industry which has caused loss to the individual, whether it be that of life or otherwise, should pay the loss. Or practically that the statutary law should restore to the individual the loss occasioned by the industry itself, and this proposition we venture to suggest for your honor's careful consideration.

System Costs More

It is admitted, and we believe it will probably be found to be true generally, that modern workmen s compensation costs more than the old plan of employer's liability; but, on the other hand, it confers larger benefits upon the employe, while it relieves the employer of a heavy personal liability. The material question to consider is the expense of doing business by way of a Government commission. It has been found, broadly speaking, that the commissions have transacted the business at much less cost than the insurance companies, and in this connection it is necessary to say that we believe the Government of the province should pay part of the expense of the commission, probably all of its administrative expenses.

In the province of Ontario, where, of course, the income of the commission is large, the cost has only run to about 4½; putting it still more broadly, the right whereas the ratio of expense of insurance companies is probably not less than 35 per cent. It is therefore clear that of the total amount collected

by a commission, a much larger amount is returned to the employe than is returned by the systems at present in force. One reason, and probably it is a sufficiently sound one, why the province should contribute to the expense, is that in some cases those who are left behind by the injured workman become a charge upon the public, and the assessment which is made under the workmen's compensation plan upon all industries does away with the possibility of these public charities, and the contribution should, therefore, be made partly by the public. This is true in all the provinces of Canada where the commissions are in force, but on account of the short time they have existed in British Columbia, Manitoba and Nova Scotia, it is not feasible to give exact details of cost.

Nova Scotia's Legislation

The Nova Scotia Act runs in this wise:—Fifty-five per cent. of the injured workman's wages is paid when he is incapacitated, and less in proportion to the injury when partially incapacitated. If death ensue, $20.00 a month to his widow until death or re-marriage, in the latter event two years annuity and $5 a month for each child, but the latter not in all to exceed $20 a month, no matter how many children, until each attain the age of sixteen years.

A certain number of occupations are excluded in Nova Scotia by regulation, on account of the smallness of the number employed, or for some other reason, for those which are so excluded the Common Law Rights are preserved. In cases where the Statutory right to collect is given to the employe, the Common Law right of action and all other Statutory rights are taken away.

On the practical side of the question, and accepting as we do the principle of workmen's compensation, we venture to say that the Act of Nova Scotia is more nearly applicable to this province than any other. Without wishing to criticize, and in fact not criticizing, permit us to say that the Acts of British Columbia, Manitoba, Ontario and Nova Scotia, are, in our opinion, too drastic to be applied in their entirety, in this small province, in fact in those provinces there is generally assumed liability, ended in some cases only by death of the workman, or his or her dependent, if the latter is a widow. While all of these Acts may be open to question at one point or another, yet each has strong features, and after full consideration we suggest that an Act along the lines of that of Nova Scotia, modified in some particulars but enlarged in others, be submitted by Your Honor's advisers to the Legislative Assembly of this province; strict provision being made:

Firstly:—To limit by way of weekly or monthly payments, the amount payable to any one person, or his or her dependents to $3,500. This suggestion varies radically the other Acts, but we believe the limit should be fixed in the public interest.

Secondly:—That the Nova Scotia Act be again varied by a provision for first medical aid of a character to be determined by the commission itself.

Thirdly:—That a system of merit rating be adopted so that the rate of assessment to each employer will be fixed to some extent upon the record of his own particular business. And, therefore, if the record of any particular industry were especially good, it could be noted in a general consideration of all rates.

Fourthly:—If it is possible that consideration be given to a scale of specified payments in lieu of the weekly or monthly one as above described in case of certain specified injuries.

Fifthly:—That the Act only apply to those whose employers have filed their payrolls as may be provided by the Act, but that failure to comply shall leave the employer open to action at law, and that he should be placed under heavy penalty as well for such failure.

Sixthly:—That in order to keep as close watch over each industry as possible, that the provisions of the Factory Act be extended so that it will be necessary for each engineer to have a certificate for the special industry in which he is engaged which shall set forth the date of his employment, and notice to be given to the government of the termination of his engagement, in other words the government should know at all times where each engineer is employed.

Seventhly:—That negotiations be entered into with the Medical Society of New Brunswick to fix, if possible, fees for first medical aid or for other services which may be rendered under the Act.

Eighthly:—That provision be made to include occupational or industrial diseases.

Ninthly:—That the $5 monthly to be paid to each child be not limited to any number.

Tenthly:—When an employe is paid more than $1,500 a year the Act shall only apply on that basis; to those who are paid less than $6 a week, full wages shall apply.

Eleventhly:—That the waiting period be fixed at seven days, no payment to be made for any part of this time, unless incapacitated for that period when compensation shall be paid from date of injury.

Twelfthly:—That provision be made to pay burial expenses in case of death of workman, the amount of which shall be limited in the Act to a special sum.

Committee's Recommendation

We therefore recommend to Your Honor that an Act be passed embodying the above suggestions; believing, as we do, that from an economic point of view each industry should carry its own burden so that every human life which is jeopardized in the process of creating should be paid by the industry affected. In other words, that human life, human thought, human action which have been impaired by injury arising out of, or in the course of employment, should be repaid by the industry which has caused the loss, which therefore would carry the burden of debt to the individual, it would also thereby relieve the employer in many instances of his present heavy liability.

There is enclosed herewith a copy of the testimony taken at the different sessions of the Commission, as well as tabulated statements of the payrolls of the province. We estimated that these represent about 70 per cent. of the yearly wages of the province, but we think they establish sufficiently nearly the full amount to justify us in making the recommendation which we have the honor to submit herein.

Yours respectfully,

(Sgd.) F. J. G. KNOWLTON.
(Sgd.) L. W. SIMMS.
(Sgd.) J. B. CUDLIP.
(Sgd.) J. L. SUGRUE.
(Sgd.) FRED W. DALEY.

NINE-HOUR DAY

The Frost & Wood Co. inaugurated a sweeping change this week in the regulations governing labor in their shops at Smiths Falls, Ont., when they instituted a nine-hour day in all departments except the munitions shop. The working hours will now be from seven in the morning to five in the afternoon and on Friday the whistle blew at five o'clock for the first time. The same scale of wages will be in effect for the nine-hour day that has prevailed for the ten-hour day, and piece work men and shell workers will receive a corresponding increase in pay. It is one of the most important changes in the regulations covering labor that has ever been put into effect voluntarily by any large Canadian industry.

The Need of a Representative Trade Body

Suggestion that the Boards of Trade in the Larger Centres Should be Re-organized and Combined in the Associated Boards of Trade of Canada to Co-operate with the Canadian Manufacturers Association

By L. T. WALLS

General Sales Manager, Manitoba Rolling Mills Co., Winnipeg

Mr. Walls has been contributing a series of articles on Trade Organization to the Trade Expansion Supplements of the Winnipeg Free Press. The following is the third in the series, and in it Mr. Walls makes an important suggestion as to the means of co-ordinating effort among the various trade organizations of the country.—EDITOR.

WE now take up the subject of Co-Ordination of Trade Associations. This matter has been giving the writer considerable thought for the past year or more, and it seems opportune at this time to present some personal thoughts that might be deemed worthy of consideration by representative business men of this community.

Western Canada, and Winnipeg in particular, has a large number of trade and allied associations, each presenting its claim to performing certain functions in the interests of its members. Some are doing useful work, and are capably managed. But there is a lack of co-ordination. In other words, there are no connecting links binding them together. In consequence of which, this community's efforts are insufficiently focused, and when all should be co-operating together, there is the greatest difficulty in obtaining representative action.

We need not condemn ourselves too severely on account of this condition, as Canada, as a nation, is in a similar situation. Great Britain was in the same straits until radical methods were adopted since the commencement of the war.

This was exemplified only last December when Sir Albert Stanley, the President of the Board of Trade of Great Britain, met a deputation of business men from the Associated Chambers of Commerce of the United Kingdom to discuss the subject of Government Control of Trade and its Relation to Exports and Imports.

Sir Albert Stanley was recently chosen as a result of an agitation on the part of business men, to obtain the Government's consent to the appointment of a Minister of Commerce, who would be a business man, and Sir Albert has apparently justified his appointment.

To the deputation he said: "Well, gentlemen, ever since I have been at the Board of Trade, the difficulty that I have been confronted with in a matter of this kind has been to know to what representative organization we should go in discussing matters affecting their interests."

This brings home to us in Canada the fact that our situation is somewhat analogous to that referred to by Sir Albert Stanley.

Great Britain, however, has taken swift steps to remedy the situation, and in issuing recently what is called "Form K," formally recognized the Associated Chambers of Commerce of the United Kingdom, in co-operation with the Federation of British Industries, as the joint representative trade body of the country.

The British Government, through the Associated Chambers of Commerce, would only give recognition to chambers scattered throughout the Kingdom, that had a sufficient number of representative members, whose total annual membership fees amounted to not less than £500.

You can thus see that the Government of Great Britain now has a truly representative Trade Executive, with whom it can co-operate in the framing of its policies.

What has been done by the British Government along Trade Organization lines in the past few months, would take columns of newsprint to describe. Suffice to say that the business men of Britain are now co-operating effectively together.

What of the situation in Canada?

We need a similar awakening. There are some efficient trade organizations in Canada to-day, and in particular I refer to one—The Canadian Manufacturers Association.

This is a national body, and is actively engaged in the formation of Branch Associations in important centres throughout the whole Dominion. But it cannot be classed as the representative trade body of Canada, and be recognized as such by the Dominion Government.

I would suggest that immediate steps be taken by the Winnipeg Board of Trade to initiate a movement to first (1) become itself a truly representative body of all trade interests of Winnipeg and district; and second (2) to call a conference to be held in Winnipeg (as Winnipeg is practically the geographical centre of Canada), inviting the representatives from Boards of Trade in all the most important centres of Canada.

These suggestions are made that thereby some action will result along the lines of the Co-ordination of Trade Associations in this and other communities.

As to the Winnipeg situation, we have many trade and allied associations, which, if placed under executive control, would be more responsive to public opinion, and be considered representative of all trade interests.

The idea is not original. It has been made effective in many cities in the United States. We might mention Kansas City, Seattle and St. Paul, as three most recent examples, where executive control has taken place, with splendid results.

A capable, well-paid executive secretary is appointed (very frequently a man with good credentials, unknown in the community), who is deputed to co-ordinate the trade associations, and put the city upon a business basis.

It is unnecessary at this time to give the names of the trade associations in Winnipeg, which might be thus co-ordinated.

The second suggestion would follow as a result of the first. As soon as Winnipeg had completed its organization, it would be necessary for all other large Boards of Trade in Canada, to reorganize upon similar lines, and finally at the proposed conference in Winnipeg, form "The Associated Boards of Trade of Canada."

"The Associated Boards of Trade of Canada," co-operating with the Canadian Manufacturers Association, could then be recognized by the Dominion Government, as the Representative Trade Body of Canada.

The organization thus created, co-operating with recognized Farmers' Associations, would be of inestimable strength to the Government of our country, in effectively controlling and organizing the resources of the State for greater war effort in the production of all necessary products.

The war has taught Great Britain one never-to-be-forgotten lesson, that whether it be war or peace, the organization of the resources of the State is of paramount importance to the success of the nation.

May Canada take the lesson to heart.

Matters of Importance Affecting the Tariff

Prices Fixed on Pig and Scrap Iron in the United States—Procedure Changed in connection with Licenses—Restricted Importations from the United Kingdom—United States Prohibited Imports

(Published by the Tariff Department, C.M.G.)

UNITED STATES FIXED PRICES ON PIG AND SCRAP IRON

The Customs Department, Ottawa, under date April 5th instant, has instructed Collectors of Customs on the foregoing matter, as follows:

Attention is drawn to the following announcement:—'Washington, March 26th—President Wilson, late this afternoon, approved a recommendation of the War Industry Board continuing present steel prices in effect, with two exceptions until July 1st. The maximum price for basic pig iron is reduced from $33 to $32 a ton, and of steel scrap from $30 to $29.'

WAR MEASURES—PROHIBITED EXPORTS

An Order-in-Council was passed on the 9th day of March which prohibits the export to all destinations of the following goods, except under license:

Abrasives and all materials entering into their manufacture.

Ammonium sulphate—Calcium carbide.

Electrodes—Machinery.

Bones and other materials entering into the manufacture of fertilizers.

Chemical wood pulp, mechanical wood pulp, newsprint paper.

Iron or steel comprising: Wire rods, wire plain or galvanized, or otherwise coated, sheets, plates, bars.

Also on April 5th instant platinum was prohibited to be exported without license.

APPLICATIONS FOR UNITED STATES LICENSES TO EXPORT COMMODITIES TO CANADA—PROCEDURE CHANGED

Effective on and after the 8th instant, the War Trade Board, Ottawa, instead of approving applications and returning same to the Canadian consignee to be filed at Washington through the United States exporter, will now, after approval, forward the application direct to Washington. The notice issued by the War Trade Board follows:

EFFECTIVE ON ALL APPLICATIONS RECEIVED ON AND AFTER 8TH APRIL, 1918

1. All applications shall be made in *triplicate* to the Director of Licenses, War Trade Board (Canada) at Ottawa.

2. *The Applicant or Consignor.*—The U.S. Exporter, or Consignor, will fill out the U.S. form "X" in triplicate, signing at (3) of said form. He will send the three copies so signed to the purchaser or consignee.

3. *The Purchaser or Consignee.*—The purchaser or consignee in Canada will make out, if necessary, form X-1, X-2, X-3, X-4 or X-5 (whichever the nature of the commodity calls for) in triplicate, and attach to the application form X. He will then send on to the War Trade Board at Ottawa form X with supplement.

4. The War Trade Board (Canada) will scrutinize, and if the application meets with their approval, ratify in full, or with qualifications, as they deem proper.

5. The application will then be forwarded by the War Trade Board (Canada) to the Canadian War Mission in Washington, who will present it in person to the War Trade Board (U.S.) in Washington.

6. The License or Notice of Refusal will be delivered by the U.S. War Trade Board, Washington, to the Canadian War Mission in Washington, who will notify the consignor and consignee that the license has either been granted or refused, and if granted, forward the license itself to the consignor.

The above procedure will be followed in all cases where Export Licenses require our approval or where exporters or importers request our assistance. Unless in special circumstances, where Canadian importer requests our assistance, Form X, X1, X3, X4 and X5 do not require to be submitted through the War Trade Board, Ottawa.

It is realized that there may be a little inconvenience at the inception of this new form of procedure, but both the War Trade Board, Ottawa, and the Canadian War Mission in Washington will do all in their power, consistent with insuring the smooth working and efficiency of the new Procedure Rules, to assist both consignors and consignees in getting applications forwarded and presented expeditiously.

J. W. MCCONNELL,
Ottawa, April 4th, 1918. Director of Licenses.

RESTRICTED IMPORTATIONS FROM THE UNITED KINGDOM

The matter of priority assistance to importers in Canada in procuring supplies of commodities from the United Kingdom, on and after Monday, April 1st, 1918, is being handled by the Canada War Trade Board, Ottawa. The notice from the War Trade Board, Ottawa, follows:

"I beg to advise you that on and after Monday, April 1st, 1918, applications for British Priority Assistance and Export Licenses must be sent to the Canadian War Trade Board, Bank Street Chambers, Ottawa, Ont., to whom all correspondence on these subjects should be addressed after that date.

"I enclose herewith a supply of the new application forms, which will be used after the end of this month, to supersede the present form."

The forms referred to may be obtained by any interested party from the War Trade Board, Ottawa, or from the Tariff Department of the Canadian Manufacturers Association, Toronto.

UNITED STATES PROHIBITED IMPORTS

The United States War Trade Board, Washington, under date March 23rd, 1918 (W.T.B.R. 82), has restricted the importation into the United States of a substantial list of commodities. From April 15th, instant, none of these commodities may be shipped from Canada into the United States, except where the United States War Trade Board has authorized the shipment by import license. To ensure observance of this regulation, United States Consuls in Canada have been instructed not to issue consular invoices on and after April 15th, 1918, in respect to such commodities, without first being furnished with the number of the import license, or being given other evidence of the issuance of such license. The consignee in the United States is the person who should apply to the United States War Trade Board for license to import the desired commodity.

The full text of the regulation follows:

Under the power conferred upon him by the Trading with the Enemy Act, the President, on February 14, 1918, issued a proclamation which required an import license for all articles from all countries. The chief purpose of this was to enable this Government to eliminate less essential imports to the end that tonnage might be conserved, and additional

shipping be made available for the transportation of troops and supplies to Europe. Similar steps have been found necessary by the other allies, and England particularly has found it necessary to impose most drastic import restrictions in order to most effectively devote her shipping to the successful prosecution of the war.

For many weeks past, a corps of specialists have been giving the closest study as to the manner in which this import restriction would be exercised so that the greatest saving could be accomplished with the least injury to our ordinary commercial activities. The question was still further complicated by the earnest desire of this Government to affect as little as possible the industry and commerce of the countries associated with us in the war, and to work as little hardship as possible to neutrals. The question involves close co-operation with the Shipping Board and consultation with the State Department, the Treasury Department, the Food Administration, and other branches of the Government, as well as the War Trade Board, within whose province falls the actual administration of the control. As a result of these deliberations, the War Trade Board, through its Bureau of Imports, publishes the first list of restricted imports.

Applications for license to import the articles appearing on the list will not be granted except under the following circumstances:

(1) When the articles mentioned are actually shipped from abroad prior to April 15, 1918.

(2) When coming by rail from Mexico or Canada, when the goods in question originated in those countries or in others from which such goods are being licensed for import.

(3) When coming as a returned cargo from European points and then only (*a*) when coming from a convenient port; (*b*) when loaded without delay; and (*c*) when the importation from Europe is not specifically prohibited in said list.

In the future, therefore, applicants for licenses to import articles mentioned in the list will be obliged to show in their applications the existence of such of the facts above outlined as will warrant the granting of such licenses.

In the case of shipments from European points, the most satisfactory evidence will be proof that shipping space has been actually engaged. The present form of application for import license will generally be found adequate for this purpose, and where this is not found to be the case, a letter setting forth the additional facts should accompany such application.

The United States Consuls have been instructed not to issue consular invoices on and after April 15, 1918, for the articles mentioned in the list without first being furnished with the number of the import license or being given other evidence of the issuance of such license. Shipping agencies are also advised not to accept for shipment consignment of the articles mentioned in the list without similar evidence of the issuance of the import license. This applies only to the articles mentioned in the list. No proof of the issuance of the import license for articles not so mentioned is to be required, either by Consuls before issuing consular invoices, or shipping agencies in accepting freight. It will devolve upon importers, therefore, to advise their shipper abroad by letter or cable, of the number of their import license, so that such shipper will be able to furnish the same to the consuls and the shipping agencies. This will mean that importers must be diligent in applying for import licenses a sufficient time in advance of the shipment, so that the number of the import license may be communicated abroad in ample time.

It should be borne in mind by importers that the publication of this list in no wise relieves them of the necessity of applying for license to import articles not on the list, as all commodities require an import license, except such as are now permitted to be imported under general licenses.

The following is the list of restricted imports, No. 1:

1. Agricultural implements.
2. Animals, live, except for breeding purposes.
3. Art works.
4. Asbestos.
5. Beads and ornaments.
6. Blacking, and all preparations for cleaning and polishing shoes.
7. Manufacturers of bone and horn.
8. All breadstuffs except wheat and wheat flour, including imports from Europe.
9. Broom corn.
10. Candlepitch, palm, and other vegetable stearin.
11. Cars, carriages and other vehicles.
12. All acids.
13. Muriate of ammonia.
14. All coal tar distillates except synthetic indigo.
15. Fusel oil or amylic alcohol.
16. Citrate of lime.
17. All salts of soda except nitrate of soda and cyanide of soda.
18. Sumac, ground or unground.
19. Chicory root, raw or roasted.
20. Clocks and watches and parts thereof.
21. Cocoa and chocolate, prepared or manufactured.
22. Manufactures of cotton.
23. Cryolite, except not to exceed 2,000 long tons for the year 1918.
24. Dials.
25. Dice, draughts, chess men, billiard balls, poker chips.
26. Eggs or poultry.
27. Electric lamps.
28. Explosives, except fulminates and gunpowder.
29. Feathers, natural and artificial.
30. Manure salts.
31. Manufactures of vegetable fibres and textile grasses, except jute.
32. Fish hooks, rods and reels, artificial bait.
33. Fluorspar.
34. All fruits, except pineapples and bananas.
35. All nuts, except cocoanuts and products thereof.
36. Gelatine and manufactures thereof, including all from Europe.
37. Gold and silver manufactures, including jewelry.
38. Sulphur oil or olive foots.
39. Grease.
40. Hay.
41. Honey.
42. Hops.
43. Infusorial and diatomaceous earth and tripoli.
44. Mantles for gas burners.
45. Matches, friction and lucifer.
46. Fresh meats.
47. Meerschaum, crude or manufactured.
48. Musical instruments and parts thereof.
49. Nickel.
50. Oilcake.
51. Oilcloth and linoleum for floors.
52. All expressed vegetable oils from Europe only.
53. Lemon oil.
54. Non-mineral paints and varnishes.
55. Pencils and pencil leads.
56. Penholders and pens.
57. Perfumery, cosmetics and toilet preparations.
58. Phonographs, gramophones, graphaphones, and parts thereof.
59. Photographic goods.
60. Pipes and smoker's articles.
61. Plants, trees, shrubs and vines.
62. Plates, electrotype, stereotype and lithographic; engraved.
63. Plumbago of graphite (until July 1, 1918, thereafter not exceeding 5,000 long tons for remainder of 1918).
64. Pyrites (except not exceeding 125,000 long tons to October 1, 1918).
65. Rennets.
66. Artificial silks and manufactures thereof.
67. Soap.
68. Malt liquors, including all from Europe.
69. Wines.
70. Other beverages, including all from Europe.
71. Candy and confectionery, including all from Europe.
72. Tar and pitch of wood.
73. Toys.
74. Umbrellas, parasols, sunshades and sticks for.
75. Beans and lentils.
76. Dried peas from Europe only.
77. All vegetables, except beans and lentils, and peas, either in their natural state or preserved or prepared (including all from Europe).
78. Vinegar.
79. Whalebone, unmanufactured.
80. Manufactures of wool.
81. Manufactures of hair of camel, goat and alpaca.
82. Zinc.

VANCE C. MCCORMICK,
Chairman.

FOREIGN TRADE OF CANADA

(Comparison 1916, 1917 and 1918.)

IMPORTATIONS.

	Month of February.			Eleven months ending February.		
	1916.	1917.	1918.	1916.	1917.	1918.
Dutiable Goods	$29,097,441	$36,490,288	$30,705,474	$254,551,876	$407,136,756	$491,682,329
Free Goods	22,557,527	31,540,181	21,500,974	191,196,880	335,858,261	383,583,820
Total	$51,654,968	$68,030,469	$52,206,448	$445,748,756	$742,995,017	$875,266,149
Coin and Bullion	2,109,968	525,469	901,766	33,728,819	26,448,170	11,676,611
Grand Total	$53,764,936	$68,555,938	$53,108,214	$479,477,575	$769,443,187	$886,942,760
Duty Collected	$10,489,586	$11,409,494	$9,449,747	$91,757,447	$130,550,845	$145,789,221

EXPORTATIONS.

Month of February.

	——1916——		——1917——		——1918——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$4,896,026	$2,518	$5,074,172	$924	$5,960,721	$98,616
The Fisheries	1,782,071	48,410	1,655,615	56,497	4,336,162	99,350
The Forest	2,595,420	1,385	2,459,024	660	2,354,446	1,551
Animals and their Produce	5,492,339	74,472	7,652,860	901,753	10,918,931	526,068
Agricultural Products	13,898,856	23,830	11,449,080	371,949	28,089,659	75,603
Manufactures	28,606,680	556,508	39,504,694	1,835,569	34,346,308	2,509,047
Miscellaneous	659,776	124,742	428,938	87,513	355,390	93,056
Total Merchandise	$57,931,168	$831,865	$68,224,383	$3,254,865	$86,361,617	$3,403,291
Coin and Bullion	....	116,288	28	127,486	....	358,485
Grand Total Exports	$57,931,168	$948,153	$68,224,411	$3,382,351	$86,361,617	$3,761,776

EXPORTATIONS.

(Eleven Months Ending February.)

	——1916——		——1917——		——1918——	
	Domestic.	Foreign.	Domestic.	Foreign.	Domestic.	Foreign.
The Mine	$58,585,018	$7,274,699	$75,636,196	$207,664	$66,988,329	$1,050,720
The Fisheries	20,323,484	190,052	22,515,995	334,849	29,236,929	526,942
The Forest	48,023,709	425,418	52,292,824	486,874	47,976,884	59,369
Animals and their Produce	94,255,595	2,627,889	112,985,527	5,932,373	163,190,332	6,906,665
Agricultural Products	231,808,768	17,174,811	351,451,449	6,439,980	529,817,956	9,565,025
Manufactures	195,021,232	7,422,076	408,160,190	8,767,488	598,602,853	22,159,616
Miscellaneous	5,178,594	1,408,577	5,918,274	1,556,406	4,359,518	2,009,678
Total Merchandise	$653,196,400	$36,523,522	$1,028,960,455	$23,725,634	$1,440,172,801	$42,278,015
Coin and Bullion	315	103,379,843	85,980	196,232,141	287,143	3,044,164
Grand Total Exports	$653,196,715	$139,903,365	$1,029,046,435	$219,957,775	$1,440,459,944	$45,322,179

NEW MANAGING DIRECTOR

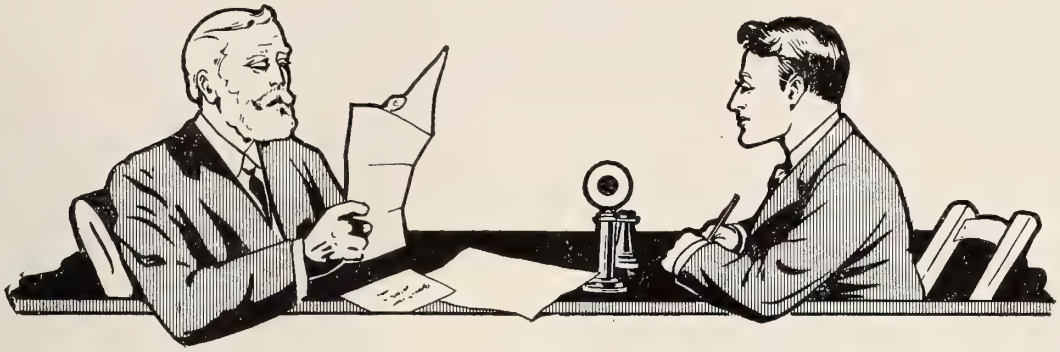
W. B. Champ Assumes Important Office in Hamilton Bridge Works Company, Hamilton

Walter Baker Champ, who has for many years been secretary-treasurer of the Hamilton Bridge Works Co., Ltd., and who was last month elected managing director and secretary of the company, was born in Hamilton, March 23, 1874. His entire business career has been with the Hamilton Bridge Works Company, having joined that firm when he was only 17 years old. He was appointed treasurer of the company when only 24 years of age and seven years later he was made secretary-treasurer. Mr. Champ has been a director of the company since 1910. He is a member of the Hamilton Board of Trade and was president of that organization for the year 1909. He is a member of the Canadian Manufacturers Association and served on the executive council of that association from 1909 to 1912. As managing director of the Hamilton Bridge Works Co. Mr. Champ succeeds the late R. Maitland Roy, Mem. Can. Soc. C. E. Mr. Champ has been acting-manager of the company since Mr. Roy's death in July, 1916.

NEW SHIPYARD AT RUSKIN

New Vancouver Company Will Build Ten Steamships

The Standard Shipbuilding Company, Dominion Building, Vancouver, announce that they have closed contracts with the Imperial Shipping Board for ten composite steamers of thirty-five hundred tons dead weight capacity which will be built at a new shipyard to be established at Ruskin, on the Fraser River. Mr. P. J. Donohoe, Naval Architect, will be superintendent of the plant. His designs have been approved and a representative of the company is now on his way to London with the final plans. The company has 2,200 feet of frontage on the Fraser River and already has a sawmill, machine-shop and smithy in operation. The vessels will be 281 feet in length, 48 foot beam and twenty-seven foot depth. These will be composite ships having a reinforced steel keel and steel knees instead of the natural wood knees used in the wooden vessels already constructed. It is expected to have the whole of the eight keels laid within a couple of months and the vessels will be launched broadside on. Under this system, construction of two boats on each set of ways can go on simultaneously.



"There is something about this one, John, that makes me feel they will see through whatever they undertake. They don't quote the lowest price, but we will get the extra value unless I am mistaken."

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What happens when you are away?

and there is a hot pay-time dispute between your workmen and the time clerk?

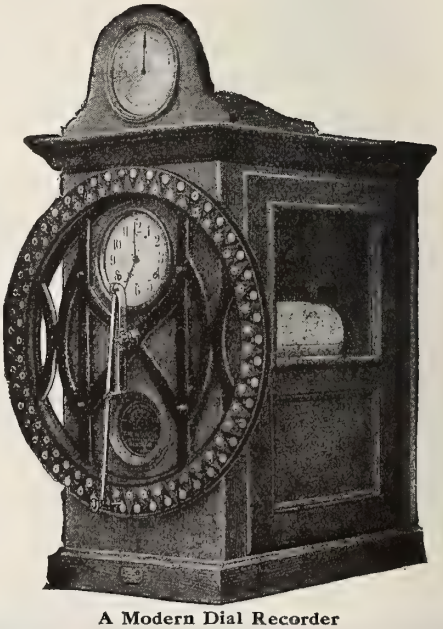
Some mix-up! Maybe a few valuable employees have to be fired—or they fire themselves. What's wrong? The time-keeping system. No red-blooded workingman likes to have disputes with the time-keeper—and it isn't fair to the time-keeper or cashier. Better have a machine to make all time records. Use an

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TIME RECORDER DIVISION

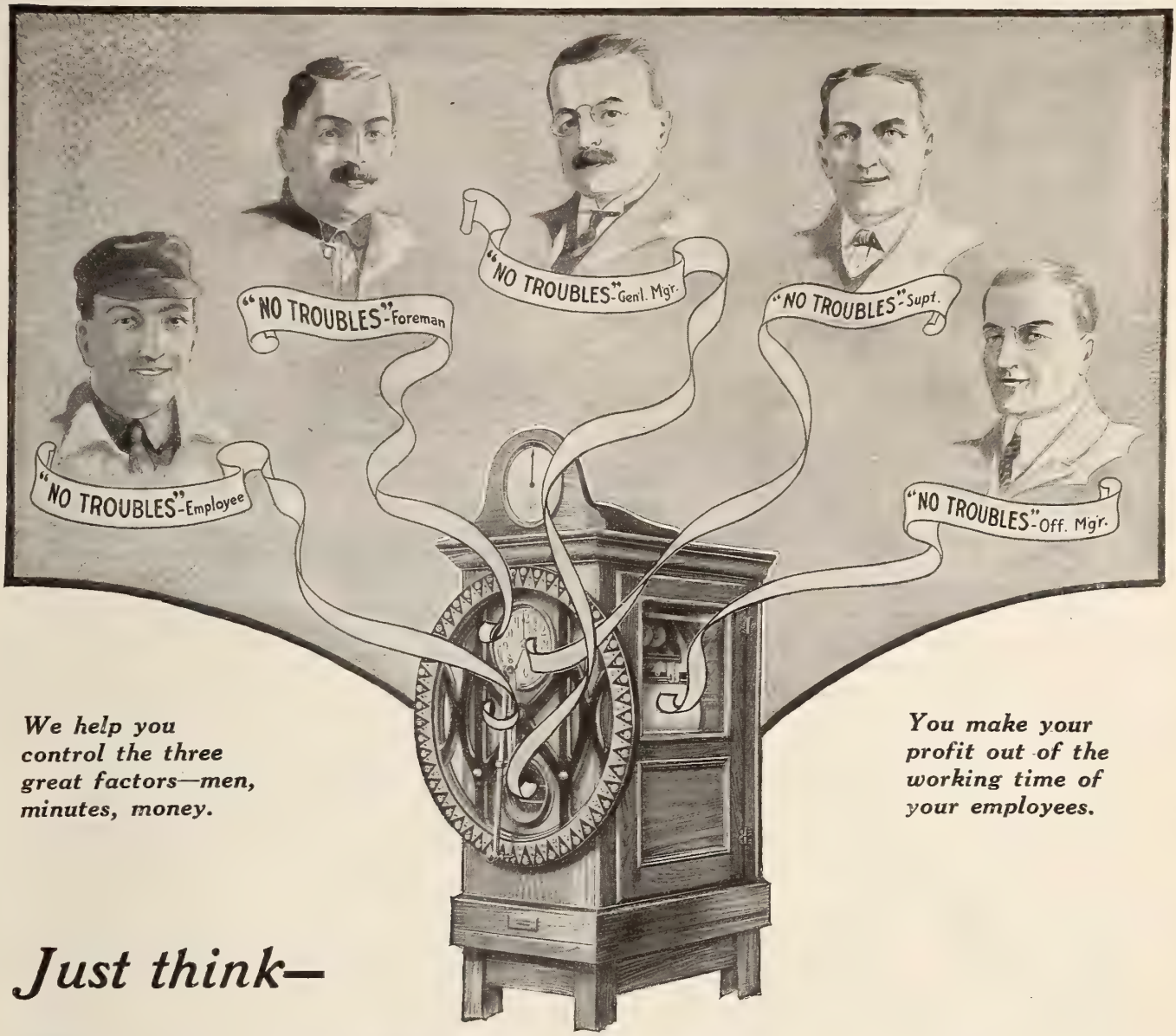
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FRANK E. MUTTON, Gen. Man.

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227 McDermott Ave.

VANCOUVER
R. Donohoe, 624 Birks Bldg.
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Trade Enquiries

These enquiries come into our hands from various sources. The Weekly Bulletin of the Department of Trade and Commerce, from which the enquiries indicated in the sub-heading allotted to them are taken, should be read regularly by those interested in foreign trade. It will be sent free on application to the Department at Ottawa. The names connected with all those enquiries can be furnished direct from the Commercial Intelligence Department, Canadian Manufacturers Association, Toronto.

DOMESTIC TRADE ENQUIRIES

82. **Cylinders and Pistons.**—A correspondent in Alberta desires to get in touch with manufacturers who are able to produce cylinders and pistons and other parts for 2½ Horse-power Motors for bicycle and motorcycle work.

83. **Tools.**—The same correspondent as above would like to hear from manufacturers who can supply him with tools used in machining the above parts on lathes.

84. **Inner-soling.**—A prominent manufacturer using quantities of scrap leather for inner-soling would like to get in touch with firms able to supply suitable material.

85. **Patent Rights.**—We have been provided with drawings of a combination high chair, by the inventor, who wishes to communicate with manufacturers who may be interested.

86. **Silica Sand.**—A correspondent using considerable quantities of this material is in the market, and any information about supplies will be welcome.

87. **Manufacturing.**—A plant in a conveniently located city in Ontario, is open to undertake work for other manufacturers, on a contract or other suitable basis, in iron, wire, sheet metal or foundry work. The Company has had considerable experience, and employs skilled help, and feel capable of successfully producing lines or parts that other manufacturers have not the facilities for.

88. **Agency.**—A retired wholesale merchant desires to occupy himself with some line of business where he can do useful work. He has had a thorough experience in dry goods and millinery lines, and good general business experience, which will enable him to handle almost any proposal with which he is approached.

89. **Agency.**—A gentleman, with a good business connection in Montreal, desires to get in touch with manufacturers not already represented in that territory. He is ready to fill in temporarily where representatives may have been called to active service.

90. **Demountable Horseshoe.**—A correspondent submits drawings and details of a patented demountable horseshoe, and desires to get in touch with some manufacturer who may enter into a mutual agreement to purchase the patent or lease on a royalty basis.

91. **Translation, Etc.**—We are in touch with a young man, familiar with Central America, who speaks English and Spanish, and is ready to travel or occupy some other position with a Canadian firm which can utilize his services.

EXPORT TRADE ENQUIRIES

92. **Agency.**—A firm dealing extensively with the West Indies and South American Republics, with head office in Birmingham, and branches in the Barbados, is particularly desirous of getting in touch with Canadian manufacturers who are considering entering the export field. Goods in which they are chiefly interested are flour, corn products, jams, jellies, biscuits, confectionery, canned goods, hardware, furniture, brushes, paints and varnishes, and enamelled ware.

93. **Agency.**—An agent in Bermuda would like to hear from Canadian manufacturers not represented there, with a view to increasing their business.

94. **Conduit.**—We have an enquiry from Australia for a well-finished conduit for electrical work. Our correspondents are very well known people in Australia and capable of handling large quantities.

95. **Wallboard.**—A correspondent in Glasgow would like to represent a Canadian manufacturer of wallboard. He claims to have a connection for this class of material, and offers to give bankers and other trade references.

96. **Export.**—We are in communication with a young Mexican who desires to get in touch with some Canadian firm, particularly machinery manufacturers, who are considering the development of Mexico and South America as export markets. He is desirous of spending some time with the organization in a capacity which will enable him to thoroughly learn the capabilities of the Company, with a view to finally representing them in the export field where he claims to have very considerable connection.

97. **Catalogues, Price Lists, Etc.**—The London Publicity Agent of a large Canadian railway would like to have copies of catalogues, price lists and so forth, issued by leading Canadian houses sent to him for his own reference and to be consulted, when required, by visitors. The industries in which he is most interested are as follows:—Textile and drygoods (including clothing, underwear, millinery, collars, etc.), groceries, machinery, hardware, stationers' supplies, druggists' supplies, cigars, cigarettes and tobacco, motors and cycles, agricultural and farm implements, tools, confectionery and furniture. Any manufacturers who desire to comply with this request can receive name and address from this office.

EXPORT TRADE ENQUIRIES TAKEN FROM THE WEEKLY BULLETIN OF THE DEPARTMENT OF TRADE AND COMMERCE

102- 98. **Bright Steel Bolts and Nuts.**—A Johannesburg firm, dealing in engineers' supplies, asks for quotations and prices on bright steel hexagonal bolts with nuts, Whitworth thread. Square-head cup pointed case hardener, steel set screws, Whitworth thread. Bright steel hexagonal head set screws, Whitworth thread. Bright steel studs, bright steel hexagonal

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MANUFACTURERS OF
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221 RICHMOND ST. WEST - - - TORONTO

The Bank of British North America

ESTABLISHED IN 1836. **INCORPORATED BY ROYAL CHARTER IN 1840**

Paid-up Capital, $4,866,666.66. **Reserve Fund, $3,017,333.33**

Eighty-Second Annual Report and Balance Sheet

Report to the Directors of The Bank of British North America, Presented to the Proprietors at their Eighty-Second Yearly General Meeting on Tuesday, March 5th, 1918.

The Court of Directors submit the accompanying Balance Sheet to 30th November, 1917.

The Profits for the Year, including $104,222.14 brought forward from 30th November, 1916, amount to $772,226.02, of which $194,666.66 was appropriated to an interim Dividend paid last October, leaving a balance of $577,559.36 out of which the Directors propose—

To declare a Dividend of 40s. 0d. per Share, payable, less Income Tax, on the 5th April next.

To pay the usual Bonus of Five per cent. to all the Staff, estimated to cost about $43,800.00, and also—

A Special War Bonus to those members of the Staff remaining on duty and of not less than six months' service to meet the increase in their necessary expenditure, estimated to cost about $34,066.66, and to carry forward $156,309.55.

The above Dividend will make a distribution of 8 per cent. for the year.

The Dividend Warrants will be remitted to the Proprietors on the 4th April next.

The Directors have made a Donation of $10,000 to the Halifax Relief Fund, and although the disaster did not occur until after the close of the Bank's financial year, they have included it in the Accounts now submitted.

During the year the following Branch and Sub-Branches have been closed:—Quesnel, B.C.; Boucherville and Varennes, P.Q.

And a Branch has been opened at Kamsack, Sask.

The following appropriations from the Profit and Loss Account have been made for the benefit of the Staff:—

To the Officers' Widows and Orphans Fund	$9,456 29
" " Pension Fund	44,743 89
" " Life Insurance Fund	11,680 00

LONDON, 26th February, 1918.

The Bank of British North America, BALANCE SHEET, 30th NOVEMBER, 1917.

LIABILITIES

Capital—20,000 Shares of £50 each fully paid			$4,866,666 66
Reserve Fund			3,017,333 33
Dividends Declared and Unpaid			2,850 61
Profit and Loss Account:—			
Balance brought forward from 30th November, 1916		$332,955 46	
Dividend paid April, 1917	$194,666 66		
Bonus to Staff	34,066 66		
		228,733 32	
		$104,222 14	
Net Profit for the year ending this date after deducting all current charges and providing for bad and doubtful debts		668,003 88	
		$772,226 02	
Dividend paid October, 1917		194,666 66	
		$577,559 36	
Deduct:			
Transferred to Bank Premises Account	$5,169 61		
Transferred to Officers' Widows and Orphans Fund	9,456 29		
Transferred to Officers' Life Insurance Fund	11,680 00		
Transferred to Officers' Pension Fund	44,743 89		
Canadian Patriotic Fund	18,000 00		
Canadian War Tax on Circulation	48,666 66		
Halifax Relief Fund	10,000 00		
American Red Cross Fund	1,000 00		
		148,716 45	
Balance available for April Dividend			428,842 91
Notes of the Bank in Circulation			5,708,882 04
Deposits not Bearing Interest			18,223,720 63
Deposits Bearing Interest, (including Interest accrued to date)			40,860,087 12
Balances due to other Banks in Canada			44 04
Balances due to Banks and Banking Correspondents in the United Kingdom and Foreign Countries			443,337 25
Bills Payable			2,200,107 80
Acceptances under Letters of Credit			803,651 65
Liabilities and Accounts not included in the Foregoing			1,127,319 19
Liability on Endorsements, $451,941.64			
			$77,682,843 23

ASSETS

Current Coin and Bullion		$960,750 00	
Dominion Notes		5,079,117 00	
			$6,039,867 00
Notes of other Banks			980,277 82
Cheques on other Banks			2,770,543 39
Balances due by other Banks in Canada			16,607 15
Balances due by Banks and Banking Correspondents elsewhere than in Canada			2,388,353 47
Dominion and Provincial Government Securities not exceeding Market Value			6,350,000 00
Canadian Municipal Securities and British, Foreign and Colonial Public Securities other than Canadian—(including £300,000 Exchequer Bonds, £100,000 3½ per cent. War Loan. The War Stocks taken at cost)			8,570,334 69
Railway and other Bonds and Stocks			46,884 37
Call and Short Loans in Canada on Bonds, Debentures and Stocks			2,607,013 55
Call and Short Loans elsewhere than in Canada			4,849,124 91
Other Current Loans and Discounts in Canada (*less* Rebate of Interest)			28,776,590 96
Other Current Loans and Discounts elsewhere than in Canada (*less* Rebate of Interest)			7,791,248 46
Liabilities of Customers under Letters of Credit as per contra			803,651 65
Real Estate other than Bank Premises			29,038 65
Overdue Debts (estimated Loss provided for)			283,059 32
Bank premises at not more than Cost, less Amounts Written off			2,374,639 83
Deposit with the Canadian Minister of Finance for the Purposes of the Circulation Redemption Fund—Cash			245,821 58
Deposit in the Central Gold Reserve			2,420,000 00
Other Assets and Accounts not included in the Foregoing			339,786 43
			$77,682,843 23

H. B. MACKENZIE, *General Manager.* E. A. HOARE, G. D. WHATMAN, *Directors.*

We have examined the above Balance Sheet with the Books in London and the Certified Returns from the Branches, and we report to the Shareholders that we have obtained all the information and explanations we have required and that in our opinion, the transactions of the Bank which have come under our notice have been within the powers of the Bank. As required by Section 56, Clause 19, of the Bank Act of Canada, we visited the Chief Office (Montreal) of the Bank and checked the cash and verified the securities and found that they agreed with the entries in the books of the Bank with regard thereto. We further report that, in our opinion, the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Bank's affairs, according to the best of our information and the explanations given to us and as shown by the books and returns.

LONDON, 4th March, 1918. N. E. WATERHOUSE, FRANK S. PRICE, *Auditors.*



For Full Information Write for Catalog I

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1916

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Salt Glazed, Vitrified Sewer and Culvert Pipes

4 inch to 30 inch

Square and Round Flue Linings, Inverts, Building Blocks

Fire Clay Stove and Range Bricks, Locomotive Arch Blocks

And All Shapes in Fire Clay

FACTORIES AT

ST. JOHNS, P.Q., and NEW GLASGOW, N.S.

nuts, both Whitworth thread. Sample of specifications on file with the Department of Trade and Commerce.

104- 99. **Cardboard Fillers.**—A Johannesburg firm makes inquiry for a supply of egg case fillers. Sample and quotation for quantities requested at once. Sizes, square, 2¼ inch by 1¾ inch by 1¾ inch.

105-100. **Box Shooks.**—A Johannesburg firm makes inquiry for quotations on box shooks for egg cases, two compartments to case, 13 inches deep by 11¾ inches by 11¾ inches.

119-101. **Agency.**—The Canadian branch of an important English company, having branches in Ceylon, Sumatra, Java, Federated Malay States, Straits Settlements, South India, India, Japan, Australia, New Zealand, and South Africa wishes to get in touch with Canadian manufacturers interested in export trade, with a view to developing a general Canadian agency.

126-102. **Cultivators.**—A Johannesburg (South Africa) firm is desirous of closing an agency arrangement with any Canadian concern prepared to manufacture the cultivator, particulars and illustrations of which may be seen on pages 400-401 of the issue of the Weekly Bulletin of March 11th, 1918. This firm is prepared to guarantee the sale of large quantities each year.

132-103. **Woodpulp, Asbestos and Chemicals.**—A Turin (Italy) firm would be interested in opening up negotiations with Canadian exporters of woodpulp, asbestos and chemical products.

134-104. **Machinery.**—An industrial engineering representative in Genoa (Italy), would be glad to enter into commercial relations with Canadian manufacturers of machinery.

136-105. **Office Furniture and Fittings.**—A firm in Genoa would be glad to have offers from Canadian houses who are disposed to export to Italy, either now or after the war, office furniture and furnishings. This firm will buy on its own account as a representative, or on a commission basis.

156-106. **Paper.**—An Australian commercial agent wishes to get into touch with Canadian paper manufacturers, either to sell on commission or to buy direct. He particularly asks for brown wrapping papers on reels or flat and cap papers. Would be glad to handle other lines.

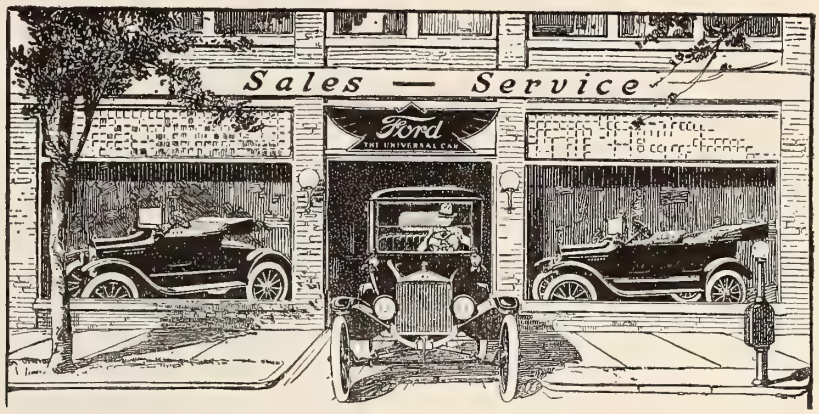
161-107. **Chocolates and Confectionery.**—A South African firm of manufacturers' agents, with sub-agents in all centres, is prepared to take up the representation of Canadian manufacturers of chocolates and other confectionery.

162-108. **Colors.**—A Johannesburg (South Africa) firm asks for samples and quotations on colors ground in oil.

163-109. **Leather.**—A South African firm of commission agents, with sub-agents in all centres, asks for the representation of Canadian leather manufacturers for the boot and shoe and saddlery trade, also sundries for the boot and shoe trade.

170-110. **Paints, Oils and Brushware.**—A South African manufacturers' agent, calling regularly on the trade, is prepared to take up the representation of Canadian paints and oils, also brushware. Immediate correspondence requested.

171-111. **Wallpaper.**—A South African agent, covering all centres of South Africa, is prepared to take up the representation of Canadian wallpaper.



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COURTEOUS attention to your needs wherever you may travel is something you appreciate, and being a Ford owner you can get it. You are always "among friends."

There are more than 700 Ford Dealer Service Stations throughout Canada. These are always within easy reach of Ford owners—for gasoline, oil, tires, repairs, accessories, expert advice or motor adjustments.

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Sedan - - -	$970
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One-ton Truck	$750

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Ford Motor Company of Canada, Limited
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Men forget business cares in the enjoyment of

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A GOURLAY-ANGELUS provides ANYONE with the ability to play ANY music artistically.

In the opportunity for recreation thus afforded, many busy men find enjoyment hitherto undreamed of, as well as a complete rest from the business worries and cares of the day. If you find it hard to leave these cares behind you when you go home, depend upon it, a Gourlay-Angelus will make you forget them.

One Toronto manufacturer tells of this pleasure in a Gourlay-Angelus as follows:—"I have always been glad I purchased the Gourlay-Angelus. The longer I have it the more I enjoy it and the more I use it."

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Catalogues and Booklets

MEADOWS' MONTHLY

A four-page monthly publication has been started by the Geo. B. Meadows Toronto Wire, Iron and Brass Works Company, Limited, with the object of informing manufacturers of the various lines manufactured by the company for use in industrial plants. In the first number, dated April, there are illustrated and described lines of lockers for employees' clothes, steel shelving, steel stools, etc. Other interesting items are included, the whole making a very readable and instructive little publication.

MANUFACTURERS AND MERCHANTS OF OSAKA

This remarkable volume of 122 pages contains nothing but advertisements. These, however, have been effectively prepared with the result that the book is not only informative but exceedingly interesting. The information is given in several different languages, so that the book can be circulated to advantage in all parts of the world.

In the foreword it is explained that the compilation of the book was the result of the realization of the marvellous advance in industry and manufacturing of Osaka, the "Manchester of Japan." The compilers had two objects in view. first, to bring leading Japanese merchants and manufacturers in the City of Osaka to the notice of buyers and consumers in other countries; second, to bring them into closer contact. The book is to be circulated free throughout the world. An attempt has been made to list nearly all the goods or articles which Japan is capable of making and which are in demand in other countries. "It is neither exaggeration nor boasting to say that these goods are not inferior, if not superior, to those made in Europe and America, owing to the fact that care is always taken to make them so as to meet the present day needs of prospective buyers and consumers."

LINK-BELT ROLLER CHAINS

As explained in the foreword, this well-illustrated booklet of sixteen pages has been issued to give preliminary information on recent roller-chain development, pending the revision of the Link-Belt Company's No. 257 Roller Chain Data Book. It is pointed out that finished steel bushed roller chains with high-grade materials, ideal proportions and accurate parts offer a maximum in transmitting value with a minimum in first cost, occupied space and weight of material. They are particularly advantageous in automotive and special machinery construction and are superior for general power transmission purposes in most cases to either belts or gears.

MARKETING AND BUSINESS MANAGEMENT

This is the title of a new magazine of business to be published monthly by W. A. Lydiatt, the well-known Toronto advertising specialist. The first number appeared in March and, if future issues maintain the standard of the first effort, *Marketing* will prove a valuable addition to the list of business publications. Mr. Lydiatt points out that after-the-war

THE CANADIAN APPRAISAL COMPANY
LIMITED

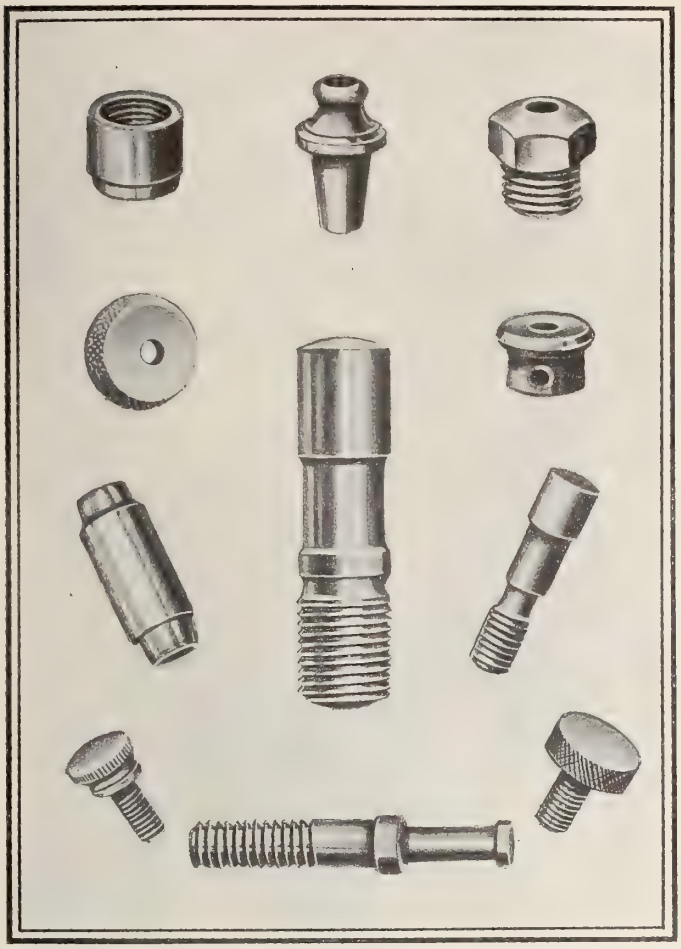
IN designing our Appraisal Service we endeavor to meet the fullest accounting, operating, insurance, and financial requirements of our clients, so that the appraisal values may furnish a sound and provable basis for the plant accounting system, the scientific placing of insurance and prompt collection of fire losses, or any other feature of a business where disinterested plant valuations are involved.

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Manufacturers of Automatic Screw Machine Products in brass and steel, also metal stampings and press work of all kinds.

Your enquiries are solicited and by return mail we will quote price and deliveries which in all cases will be prompt.

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PLATES

1/8 to 5/8" thick up to 48" wide, weighing up to 1,200 lbs. each

Fluid Compressed Steel Forgings

We manufacture Merchant Bars, Rounds, Flats, Squares, Ovals, Half Ovals, Tires, Sleigh Shoes, Plain or Twisted Concrete Bars, Agricultural Sections, Cold Drawn Shafting, Machinery Steel, Angle Bar Fish Plates, Track Spikes and Bolts.

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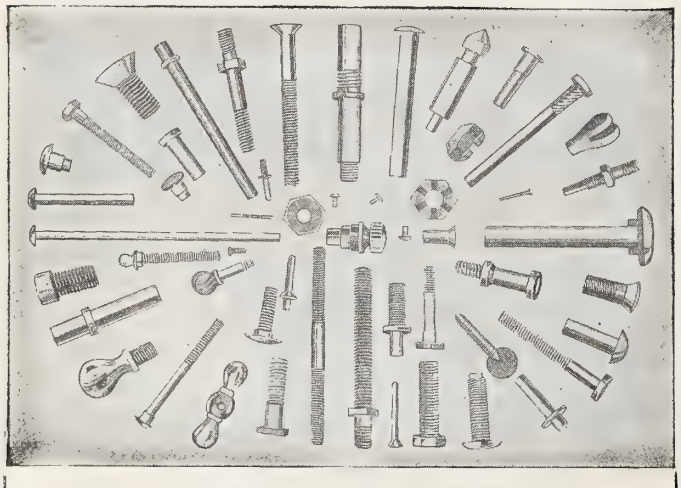
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Automatic Screw Machine Products

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Our Mechanical Engineers are at the service of our Clients.

UNITED BRASS & LEAD Limited

284 ST. HELENS AVE. - - TORONTO

W. L. TOBIAS, Superintendent
(Formerly Superintendent National Cash Register Co.)

trade conditions will call for greater selling efficiency and it is his purpose in *Marketing* to anticipate and deal with the varied marketing problems in the most authoritative way.

Marketing is a well-printed magazine of 32 pages, 8½ x 11½ inches in size and running three columns to the page. Of special interest in the first number is an article by the editor suggesting the appointment by the Government of an advertising advisory council. The number also contains an article indicating the need of a trade census and a department at Ottawa to deal with marketing problems within Canada.

BRITISH COLUMBIA'S INDUSTRIES

The Industries of British Columbia. Edited by J. H. Hamilton, Vancouver, Progress Publishing Company, Ltd.

This is really the second edition of a useful reference work published in October, 1915. At that time, as pointed out by the publishers, one of the principal objects of the book was to bring to the front the detail of equipment and scope of firms within the province capable of manufacturing or producing munitions and equipment for war purposes. Since then, the factories of British Columbia have played a worthy part in the manufacture and supply of war munitions. The first edition became exhausted, and a new edition was called for.

The book contains, first a classified list of commodities manufactured in British Columbia, with the names of the companies producing each line of goods, and then a description of the basic industries of the province, followed in each case with illustrated descriptive matter about the leading plants engaged in the production of the principal lines. In this section of the book there is contained a wealth of valuable statistical matter. Altogether it is a volume which reflects credit on the publishers, and gives a very fair idea of the extent and importance of British Columbia's industries.

FOR SALE

Complete Plating and Polishing Plant—Dynamo, tanks, solution, lathes and wheels, in first-class running order. We are discontinuing this department of our business. To manufacturers now sending out their plating, this is an opportunity to acquire a high-class equipment at a low price. Must be sold and moved quick. Apply Garland Stove & Foundry Co., Hamilton.

FOR SALE

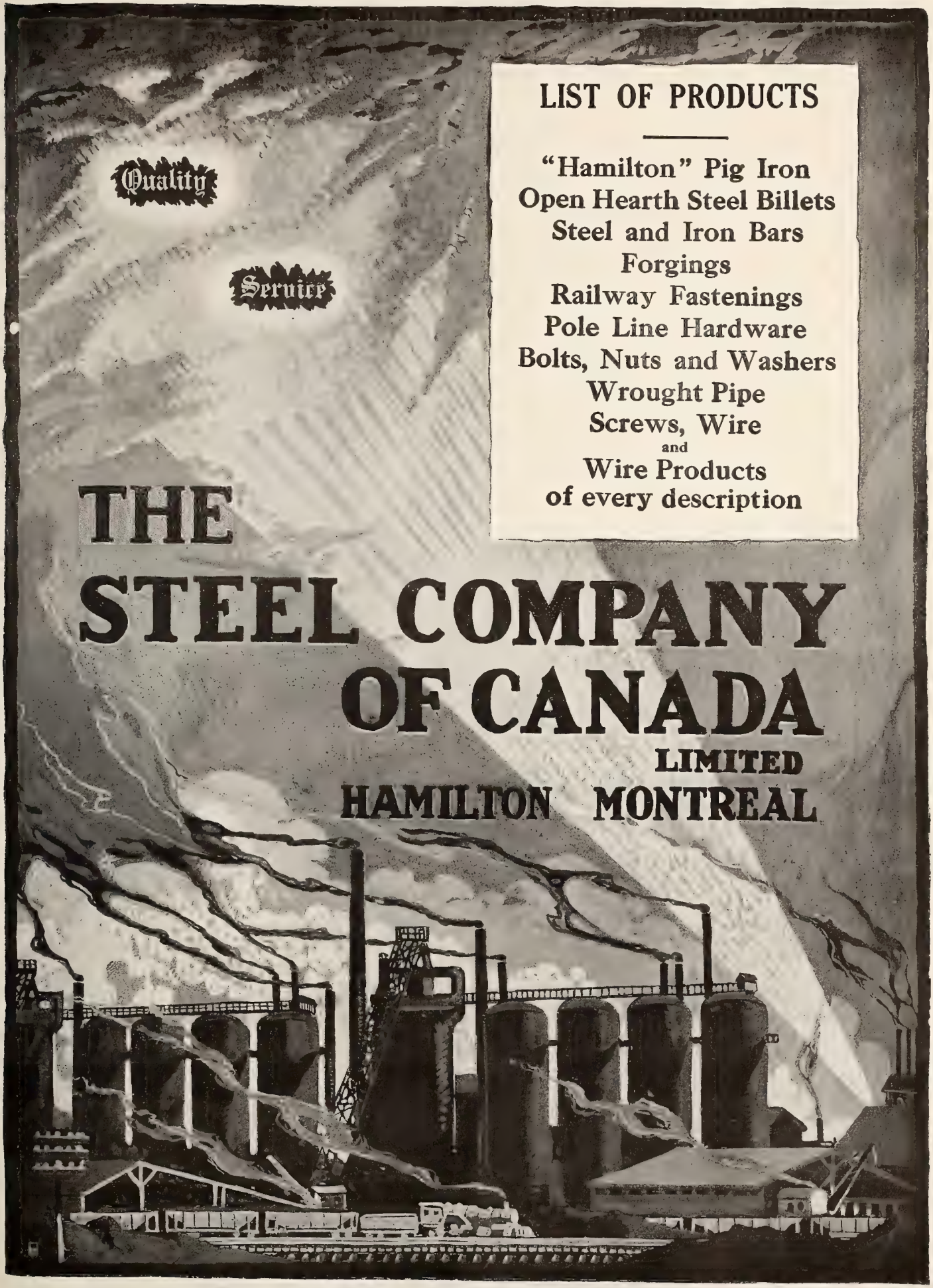
Machinery—Heavy bending brake, power punch, foot punch, folding machine, forming rolls, 35-inch exhaust fan, double spindle polishing lathes, upright drill, circular saw table, grindstone, two anvils, eight vises, and miscellaneous tools. Bargains for quick sale. Apply Garland Stove & Foundry Co., Hamilton.

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Trunks—Four large travellers' sample trunks. Used only one trip—good as new. Very cheap. Apply Garland Stove & Foundry Co., Hamilton.

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Brass Sheets, 14 oz., tinned one side—164 sheets 7⅞ x 44½ inches, and 227 sheets 8½ x 45 inches, new stock. No reasonable offer refused. Apply Garland Stove & Foundry Co., Hamilton.


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A new "Office Specialty" Catalog—this time of Filing System Supplies.

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Filing and Record Keeping Systems for the Sales-manager, the Ad man, the Purchasing Agent and the Credit man.

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Filing and Record Keeping Systems for *every* business and for *every* purpose.

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Practical, workable systems that save time, money and conserve energy—both for you and your staff.

Big business is built on doing things the *one best way*. There's one best way to file—and you want to know it. With a copy of this "Office Specialty" text book on Filing System Supplies you can.

It's too costly, frankly, to permit of indiscriminate distribution. We'll send a copy gladly, though, to any executive writing on his business letterhead.

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FILING SYSTEMS

916

The Problem of Interest on Investment*

Wrong to Carry in the Inventory and the Balance Sheet Interest on Investment Because of the Danger of Paying a Dividend Out of Capital

By P. E. KUNTZ

(Reprinted from "Manufacturers News")

CAN interest on investment, charged against manufacturing, be included in the inventory appearing in the balance sheet?

Hypothetical Example

A and B are engaged in identically the same line of business and each manufactures identically the same article.

A owns his $200,000 building and figures as his rent 5 per cent. depreciation, $2,000 taxes and upkeep, plus 4 per cent. interest on investment. B invests his $200,000 in 4 per cent. bonds and pays to his landlord as rent 5 per cent. depreciation, plus $2,000 taxes and upkeep, and 4 per cent. interest on the building occupied.

Show the status of the concerns at the close of the year from a balance sheet point of view.

A. ASSETS		Profit and Income.
Building	$190,000	B $8,000
Sinking fund (depreciation reserve)	10,000	
Manufacturing Account—		
Depreciation 5%, taxes and upkeep	12,000	
	$212,000	
1,000 units as inventoried	12	

B. ASSETS	
Bonds	$200,000
Cash (bond interest)	8,000
Manufacturing Account—	
Depreciation 5%, taxes, upkeep and 4% interest	20,000
	$228,000
1,000 units as inventoried	20

CASH PROFITS AVAILABLE FOR DIVIDENDS, DEC. 31

B. $8,000 (Interest received on bonds.)
A. Nil (No goods sold.)

Question—Can A declare a dividend if he includes interest on investment in his inventory without impairing his capital—pay out capital as dividends?

Granting the manufacturer does suffer the loss of interest on his investment, is not such an amount when included in the inventory what is known as an internal profit—unrealized or anticipatory profit?

FACTORY LEDGERS

Manufacturing Accounts.

A.		B.	
Depreciation	$10,000		
Taxes and upkeep	2,000		
Interest on investment	8,000	Rent	$20,000
Total	$20,000	Total	$20,000
1,000 units	20	1,000 units	20

* This is the concluding portion of the article appearing on page 1673 of the March issue of INDUSTRIAL CANADA.

December 31, Balance Sheet

No goods sold and showing A as having carried interest on investment into his inventory.

A.		Profit and Income Account
Building	$190,000	A *$8,000
Sinking fund (depreciation reserve)	10,000	
Manufacturing Account—		
Depreciation	10,000	
Taxes	2,000	
Interest on investment	8,000	
Total	$220,000	

B.		
Bonds	$200,000	B †$8,000
Cash, bonds interest	8,000	
Manufacturing Account—		
Rent	20,000	
Total	$228,000	

BALANCE SHEET, DECEMBER 31

(Assuming that all goods were sold at $250 per unit.)

A Assets—		"A" PROFIT	"B"
Building	$190,000		
Sinking fund (depreciation reserve) 5%	10,000		$8,000
Cash (manufactured goods)	250,000	$238,000	230,000
Total	$450,000	$238,000	$238,000
B. Assets—			
Bonds	$200,000		
Cash (bond interest)	8,000		
Cash (manufactured goods)	250,000		
Total	$458,000		

NOTE.—A did not realize the $8,000 interest on investment charged in his factory ledger until his goods were sold and therefore could not declare a dividend until the cash was available.

B did not realize as large a profit on each unit sold, but whatever difference there is was realized by the bond interest received—a profit outside of the general operations of the business.

My contentions are: It is wrong to carry in the inventory and the balance sheet interest on investment, because of the danger of paying a dividend out of capital and thereby impairing the capital invested.

That as long as the goods remain unsold and the profit not

* Gain inventory shown between the general financial ledger and the factory cost ledger, profit (or loss, or manufacturing expense, whichever you choose to call it) that cannot be realized until the goods are sold.

† Profit realized outside of the general operations of the business.

BANK OF MONTREAL

Established 100 Years (1817-1917)

Capital Paid Up - -	$16,000,000
Rest - - - - -	16,000,000
Undivided Profits - -	1,664,893
Total Assets - - -	$403,980,236

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ESTABLISHED 1875

IMPERIAL BANK
OF CANADA

CAPITAL PAID UP $7,000,000 **RESERVE FUND $7,000,000**

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The Imperial Bank offers exceptional banking facilities to Canadian manufacturers. Branches throughout Canada. Agents and correspondents in all the world centres.

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Domestic and Foreign Exchange bought and sold.

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made at all points in Canada and in foreign centres.

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dealt in at all branches.

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Money Orders and Letters of Credit issued available throughout the world.

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Accounts of Merchants and Manufacturers solicited.

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realized, how can the business man recognize it to the extent that he would be warranted in paying a dividend?

To make the charge on the factory ledger is correct, but to make it on the general financial ledger by charging manufacturing and credit rent, is writing up a profit on paper, or internal profit that has not been realized and can not be realized until the goods are sold.

The object of a balance sheet is not to show extreme conditions, but to show a conservative statement of the business—to provide for all losses and not to take advantage of any unrealized profit, to inventory goods at cost or market, whichever is the lower, to take into account contingent liabilities—notes discounted and not paid.

If the banker must act in this manner when analyzing a balance sheet for his own protection, why should the proprietor of a business, who runs the risk of losing all, act contrariwise?

Interest on an investment is an account to oneself, and no creditor who is his own debtor has ever taken his case into court to enforce payment. I cannot conceive of any business man who is willing to appear in court as both complainant and defendant and a judge who would be willing to sacrifice his dignity listening to a burlesque.

Steel of Canada

Immense Profits Earned by This Company, These Being 20 Per Cent. Ahead of 1916

The profits for the year 1917, of the Steel Company of Canada, as published in the annual statement, were $6,040,318, an increase of $1,018,927, or 20.29 per cent. over 1916, the results of which were 55 per cent. in excess of 1915, and in comparison with the 1915 year, last year's earnings show an increase of $2,809,866, or 86 per cent.

Comparisons for three years follows:

	1917.	1916.	1915.
Profits	$6,040,000	$5,021,391	$3,230,452
Depreciation	1,206,000	601,624	400,000
Balance	$4,834,000	$4,149,767	$2,830,452
Sinking fund	177,000	165,454	88,500
Net earnings	$4,656,000	$4,254,312	$2,741,952
Bond interest	515,000	525,819	531,000
Balance	$4,141,000	$3,728,493	$2,210,952
Preferred dividends	454,000	682,111	454,741
Balance	$3,686,000	$3,046,382	$1,756,211
Common dividends	690,000	460,000	.....
Balance	$2,996,000	$2,586,382	$1,756,211
Reserve	1,446,000	953,526	.....
Surplus	$1,550,000	$1,632,855	$1,756,211
Previous balance	4,647,000	3,014,641	1,258,430
Total P. & L.	$6,197,000	$4,647,493	$3,014,641

The balance-sheet shows total assets of $42,708,000. Current assets are impressive. Inventories stand at $8,008,000, accounts receivable at $4,121,000, bills receivable $100,000, cash $1,370,000, call loans $231,000, and war loans $2,648,000, making a total of $16,478,000 against $12,385,000 a year ago. Current liabilities, including dividends due total $3,749,000, against $2,896,000 at the end of 1916. That is, there was a surplus of $12,729,000 working capital, against $9,488,000 a year ago.

In his annual report to the shareholders, the Steel president, Mr. Robert Hobson, relates the acquisition of ore properties during the year. One of these is on the Mesaba Range,

and the other on the Gogebir Range. He states that the proportion of ore which the Company is entitled to receive from the two properties will be sufficient to meet over half of the Company's total ore requirements each year for a considerable number of years. The ore is paid for on a royalty basis, so that beyond paying for stripping and equipping the mines, no large expenditure of capital was necessary.

The president expresses the opinion that the Steel Company is a valuable asset to the country. It has provided large quantities of steel for munition, agricultural, railway and shipbuilding purposes, and paid in war taxes, in 1917, a larger sum than the dividends distributed to preferred and ordinary shareholders for the last three years. The Company has also paid $3,000,000 in duties on the plant and raw material.

Standard Chemical Company

Smaller Profits in 1917 Were Due to the Increased Cost of Operating

Standard Chemical, Iron & Lumber Co. of Canada, Ltd., reports sales of $4,327,056 for 1917, an increase of $807,932 over 1916, but manufacturing profits at $563,123 were $133,341 lower. The decrease of about 23 per cent. in profits in the face of a gain of practically the same proportion in sales is explained as due to the increased cost of operating.

After providing for interest, depreciation, taxes and donations for the year, the balance of profits earned would be $287,594, equal to about 8 per cent. on $3,602,700 preferred stock, on which no dividends have been paid since 1913. The surplus earnings, as in the improved year of 1916, went largely to adjustments of old accounts. Thus $136,967 was applied to a special reserve to provide for over-valuation of some of the company's properties, following an appropriation of $375,000 for the same purpose a year ago. A net balance of $150,626 was added to profit and loss surplus, which stands at $154,402, against a deficit of $98,222 at the end of 1915.

Decreased profits as compared with 1916 apparently further defer a consideration of some payment on dividend arrears such as was held in prospect a year ago.

Bank of British North America

Net Profits for the Year Ended November 30, 1917, Amounted to $668,003

The report for the year ending November 30, 1917, of the Bank of British North America, presented at the eighty-second yearly general meeting, on Tuesday, March 5, 1918, shows that the bank enjoyed a most successful year.

The profits for the year, including $104,222.14 brought forward from 30th November, 1916, amounting to $772,226.02, of which $194,666.66 was appropriated to an interim dividend paid last October, leaving a balance of $577,559.36, out of which the directors propose:—To declare a dividend of 40s. 0d. per share, payable, less income tax, on the 5th April, 1918. To pay the usual bonus of five per cent. to all the staff, estimated to cost about $43,800,000, and also a special war bonus to those members of the staff remaining on duty and of not less than six months' service to meet the increase in their necessary expenditure, estimated to cost about $34,066.66, and to carry forward $156,309.55.

The above dividend will make a distribution of 8 per cent. for the year.

During the year the sub-branches at Quesnel, B.C., at Boucherville, P.Q., and at Varennes, P.Q., were closed, and a branch was opened at Kamsack, Sask.

THE ROYAL BANK OF CANADA

Incorporated 1869

Capital Authorized.....$25,000,000
Capital Paid Up $12,911,700
Reserve & Undivided Profits..$14,324,000
Total Assets.....$295,000,000

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Branches in every Province of the Dominion of Canada and in Newfoundland; in Havana and throughout Cuba, Porto Rico, Dominican Republic, Costa Rica and Venezuela; Antigua, St. John's; Bahamas, Nassau; Barbados, Bridgetown; Dominica, Roseau; Grenada, St. George's; Jamaica, Kingston; St. Kitts, Basseterre; Trinidad, Port of Spain, San Fernando; British Guiana, Georgetown, New Amsterdam; British Honduras, Belize.

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NEW YORK AGENCY—Corner William and Cedar Sts.

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THE CANADIAN BANK OF COMMERCE

SIR EDMUND WALKER, C.V.O., LL.D., D.C.L., President

SIR JOHN AIRD, General Manager
H. V. F. JONES, Ass't General Manager

CAPITAL PAID-UP, $15,000,000
RESERVE FUND, $13,500,000

Extension of Canadian Trade

The Bank will make enquiries into the possibilities and requirements of markets abroad for exporters or importers who desire to extend their trade with British colonies or possessions. Owing to the large number of its correspondents and agents it has unusual facilities for this work.

S 57

The directors made a donation of $10,000 to the Halifax Relief Fund, and the following appropriations were made for the benefit of the staff:

To the Officers Widows' and Orphans' Fund	$9,456.29
To the Officers' Pension Fund	44,743.89
To the Officers' Life Insurance Fund	11,680.00

The following statement prepared by request of a proprietor at the last annual general meetings shows the present distribution of the bank's capital:

533	proprietors in Canada hold	6,356 shares
1,295	proprietors in Great Britain hold	12,993 shares
67	proprietors elsewhere hold	651 shares
1,895	proprietors hold	20,000 shares

The bank shows deposits bearing interest of $40,860,087 and deposits not bearing interest of $18,223,720.

F. N. Burt Company

Company Earned Record Profits in 1917, Making $40,000 More Than in Previous Year

Satisfactory gains were made by the F. N. Burt Company, Limited, according to the annual report just issued.

Last year's profits were $369,999, which compare with $329,000 in 1916, $222,000 in 1915, $212,000 in 1914, and $217,000 in 1913. The profits exceeded those of the previous year by $40,083, and those of 1915 by $147,732. As compared with the previous year's writing-off the amounts transferred to reserve are considerably larger. Out of the year's profits $25,000 was written off patent account, and $26,000 transferred to a reserve for various Government taxes. No such allowance as the latter was made in the previous year's accounts.

The amount provided for plant and realty reserve was $94,000, as against $75,000 last year, leaving the amount in this account at $225,000. The report states that the book values of the properties are considerably less than the appraised values.

American Sales Book Company

Big Increase Shown in Net Profits Last Year, but No Common Dividends Yet

Profits of the American Sales Book Company for last year amounted to $412,461. Last year's earnings compare with $341,945 in 1916, and $180,816 in 1915. Good business in the latter part of 1916 permitted the resumption of dividends on the preferred stock, and these quarterly disbursements at the rate of 7 per cent. began on February 1st of 1917, and have been continued since. With the balance of $342,115 brought forward from 1916 and $412,461 of profits last year, the directors had $754,576 for distribution. After paying bond interest of $38,430 and transferring $75,000 to the reserve for depreciations, and after payment of 7 per cent. dividends on the preference stock, totalling $215,131, there was left of the year's profits $83,899. This amount has been used as follows: Reserved for the various Government taxes to be assessed against these profits, $25,000; in reduction of patents account, $50,000; added to the profit and loss surplus, $8,899. The common stock issue of $614,600 as yet carries no dividends.

UNION BANK OF CANADA

Established 1865 Head Office, Winnipeg

Paid-up Capital.....$5,000,000 **Reserve Fund.....$3,400,000**

Total Assets over.....$140,000,000

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You will find the facilities offered by the Union Bank of Canada a decided advantage in handling Drafts, Collections and Foreign Exchange.

The Commercial Information Bureau established in connection with the Foreign Exchange Departments of our London (Eng.), New York and Montreal Offices is at your service.

London, England, Branches:
6 Princes St., E.C. Haymarket, S.W.

New York Agency: 49 Wall Street, New York City. GEO. WILSON, Agent

Canadian Westinghouse Co.

Company Last Year Earned Nearly a Million Dollars, or Slightly Less than the Amount of the Previous Year

The report of the Canadian Westinghouse Company for 1917 shows earnings, after war tax provisions, etc., of $957,287. Added to this was interest of $30,238 on Dominion war loan bonds held by the Company, and $23,752 from bank interest and miscellaneous income, making net income $1,011,276. This compares with an operating income of $1,154,534 in 1916, and is the second best return to be shown by the Company.

After writing off $165,000 for depreciation, and deducting dividends of $498,352, a balance of $347,924 was added to profit and loss, which, after the 25 per cent. dividend on March 1, 1917, amounted to $1,053,692. The balance carried forward at the beginning of the present year is, therefore, $1,401,616.

Canadian Consolidated Rubber Company

New High Records Were Established by This Company Last Year

The Canadian Consolidated Rubber Company made new high records last year. In the annual report just issued it is shown that sales for the year totalled $16,323,431, against $12,094,695 in 1916, which is a gain of $4,228,736 or 35 per cent. Net profits, after all manufacturing expenses, repairs, depreciation, interest charges and business profits tax were $1,208,018, an increase of $302,813, or about 33 per cent. After paying preferred dividends the net surplus for the year was $998,034, or 35.6 per cent. earned on the common stock. The net surplus a year ago was $617,061, equal to 22 per cent. earned.

The main features of the income statement and the balance sheets of the past three years compare as follows:

	1917.	1916.	1915.
Sales	$16,323,431	$12,094,695	$7,522,147
Profit	1,208,018	905,205	534,978
Pfd. div.	209,984	209,979	192,123
Surplus	998,034	617,601	342,854
Total surp.	4,305,934	3,307,900	2,690,298
Cur. ass.	11,189,120	7,780,761	4,994,417
Cur. liab.	2,688,735	3,939,780	1,331,783
Work cap.	8,500,385	3,840,981	3,662,634
Tot. ass.	23,394,740	18,995,906	15,096,664

The balance sheet shows a marked change in the working position of the company as a result of some financing in conjunction with the United States Rubber Co., the parent concern. The $6,900,000 five per cent. refunding gold bonds then sold retired all but $135,000 of the $2,500,000 five per cent. debentures, maturing the latter part of the current year.

B.C. Packers Association

Increase in Dividends Has Been Declared, Rate Being Advanced from 8 to 10 Per Cent. Per Annum

Both the British Columbia Packers Association and the British Columbia Fishing and Packing Company have increased their dividends. The latter is the holding company for the former, which does the dividend earning. The former has been paying 8 per cent. for a few years, but has now raised it to 10 per cent., while the latter, which has been paying 4 per cent., has raised its rate to 5 per cent.

B. C. Packers has a provincial charter, and the B. C. Fishing, the holding company, has a Dominion charter, two

Established in 1836. Incorporated by Royal Charter in 1840.

THE BANK OF BRITISH NORTH AMERICA

Paid-up Capital - $4,866,666
Reserve Funds - $3,017,333

Statement to the Dominion Government (Condensed), 31st January, 1918

LIABILITIES TO THE PUBLIC.

Notes in Circulation	$ 5,312,540
Deposits	56,732,358
Due to other Banks	884,788
Bills Payable (Acceptances by L/O)	1,366,843
Acceptances under Letters of Credit (as per contra)	1,113,404
	$65,409,933

ASSETS.

Cash on Hand and in Banks	$13,156,263
Deposit with Government o/a Note Circulation	245,822
Deposits in Central Gold Reserve	1,970,000
Government, Municipal and other Securities	12,591,380
Call and Short Loans	7,521,447
Current Loans and Discounts and other Assets	36,410,840
Liabilities of Customers under Letters of Credit (as per contra)	1,113,404
Bank Premises	2,409,292
	$75,418,448

Riordon Pulp & Paper Company, Limited
Montreal

SULPHITE FIBRE WOOD PULP FOR PAPER MILLS

CAPACITY 60,000 TONS PER YEAR

HAWKESBURY "IMPERVIOUS SPRUCE" SHEATHING in 36 and 72-INCH ROLLS

SPRUCE LUMBER, CLAPBOARDS CEDAR SHINGLES, RAILWAY TIES, FENCE POSTS

Pulp Mills: Hawkesbury and Merritton

Saw Mills:
Calumet, L'Annonciation, Boule, Quennouille, P.Q.

WE DO NOT MAKE PAPER

The Merchants Bank of Canada

Head Office, MONTREAL Established 1864

Paid-up Capital	$ 7,000,000
Reserve Funds	7,421,292
Total Deposits (Dec. 1917)	103,000,000
Total Assets (Dec. 1917)	136,000,000

PRESIDENT, Sir H. Montagu Allan, C.V.O.
VICE-PRESIDENT, K. W. Blackwell
MANAGING DIRECTOR, E. F. Hebden
GENERAL MANAGER, D. C. Macarow
SUPT. OF BRANCHES AND CHIEF INSPECTOR, T. E. Merrett

COLLECTIONS FOR BUSINESS HOUSES

The satisfactory service which The Merchants Bank renders to Business Houses, in the matter of collecting Notes, Drafts and other financial paper is due to the number and strategic location of its branches throughout Canada and the efficient system in force.

Special attention is given to Collections, returns are promptly made and credited, losses are often prevented by the care and thoroughness with which we do this part of our work.

236 Branches and Agencies in Canada Extending from the Atlantic to the Pacific.

NEW YORK AGENCY, 63 AND 65 WALL ST.

The Bank of Nova Scotia

ESTABLISHED 1832

Capital	$6,500,000
Reserve Fund	12,000,000
Total Assets	Over 110,000,000

158 BRANCHES IN CANADA LOCATED AT ALL PRINCIPAL POINTS. FOREIGN BRANCHES AS FOLLOWS:—

UNITED STATES: Boston, Chicago, New York
CUBA: Havana
PORTO RICO: San Juan
JAMAICA: Kingston and 9 other points.
NEWFOUNDLAND: St. John's and 16 other points.

LONDON AGENTS:
The London Joint Stock Bank, Limited

With its widespread system of branches and established connections in Foreign Countries this Bank is especially well equipped to handle the accounts of exporters.

CORRESPONDENCE SOLICITED

General Office: Toronto, Canada

H. A. RICHARDSON, General Manager

shares of the latter company having been given for one share of the old.

The holding company paid 1¾ per cent. as a starter in 1914, and in 1915 paid 3½ per cent., which later became 4 and is now 5 per cent. The operating company paid 5 per cent. from 1915, 6 per cent. from 1912, 7 per cent. from 1913 and 8 per cent. from 1916, the rate now being made 10 per cent.

Canadian General Electric Co.

Decrease in Gross Profits Last Year Owing to Higher Cost of Labor and Reduced Munition Profits

The annual statement of the Canadian General Electric Company, issued at the annual meeting last month, showed a decrease in gross profits, due to the higher cost of labor and the reduction in profits received from munition contracts. Despite somewhat lessened actual profits, the Company wrote off heavily for depreciation of plant, and also for the amortization of equipment for munitions. The net profit was $1,133,569.

Dividends during the year required $780,000, and a surplus of $353,579 has been brought forward.

The surplus added to last year's balance at the credit of profit and loss account, made a total at the credit of that account of $966,293, from which the sum of $500,000 was transferred to reserve, bringing the amount to the credit of reserve account to $4,000,000, and leaving a balance of $466,293 at the credit of profit and loss.

The following statement shows the profit and loss account, with the last three figures omitted:

	1917.	1916.	1915.
Gross profits	$2,051	$2,225	$1,219
Depreciation	524	408	416
Amortization	393	631	....
Net profits	$1,133	$1,185	$ 803
Dividends	780	779	698
Balance	$ 353	$ 405	$ 66
Prev. balance	612	707	940
Total P. and L.	$ 966	$1,112	$1,007
To reserve	500	500	300
Balance	$ 466	$ 612	$ 707
Reserve	4,000	3,500	3,000
Surplus	$4,466	$4,112	$3,707

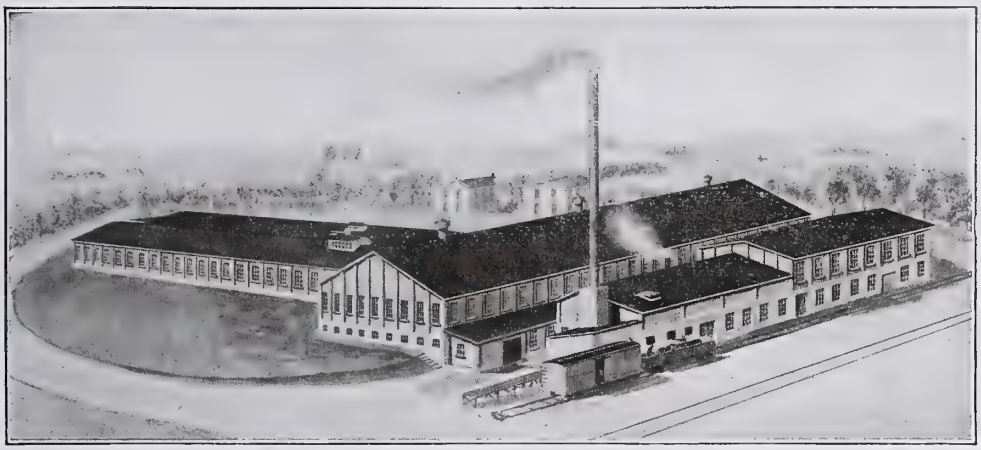
APPLICATION WITHDRAWN

Railway Companies Cancel Proposed Addition to Section 6 of the Bill of Lading Conditions

The railway companies applied recently to the Board of Railway Commissioners for approval of the following addition to section 6 of the Bill of Lading Conditions:

Such notice shall be held to have been fully given if deposited in the post office, postage prepaid, addressed to the person to be notified or to the consignee if no such person be named at the address stated therein.

The matter came up for hearing at a public sittings of the Board in Toronto on the 15th of February. Since then advice has been received that in view of the representations made at the hearing on behalf of the Association, it has been decided to withdraw the application. A large number of members were strongly opposed to it, and submitted substantial evidence in support thereof, which was of material assistance.



Coating Mill, Barber Division, Georgetown, Ont.

The Largest and Best Equipped Mill in Canada for the Coating of Paper.

"Maple Leaf" "Beaver" "C.A." Coated

Insist on these Brands being used in your Catalogue

PROVINCIAL PAPER MILLS CO., Limited

Toronto Office: Telephone Building. Private Exchange Adelaide 1986

JULIUS COHEN & JOSEPHY

Foreign Domestic **WOOL** *Noils, Wastes and Shoddy*

Also operating THE YORKSHIRE WOOL STOCK MILLS, TORONTO
Manufacturers of Pulled Shoddies

H. V. ANDREWS Canadian Representative **13 Church St., Toronto**

DARLINGS STEAM APPLIANCES



DARLING BROTHERS
LIMITED
Engineers and Manufacturers
MONTREAL, CANADA

Branches: Toronto and Winnipeg Agents: Halifax, St. John, Calgary, Vancouver



HIGH-CLASS
MADE-IN-CANADA

AIR COMPRESSORS

Send us your inquiries

HAMILTON MOTOR WORKS, LIMITED
HAMILTON CANADA

THE BROWN BROTHERS LIMITED

Simcoe and Pearl Sts. TORONTO



MANUFACTURERS OF

ACCOUNT BOOKS, LOOSE LEAF LEDGERS

Binders and Specialties

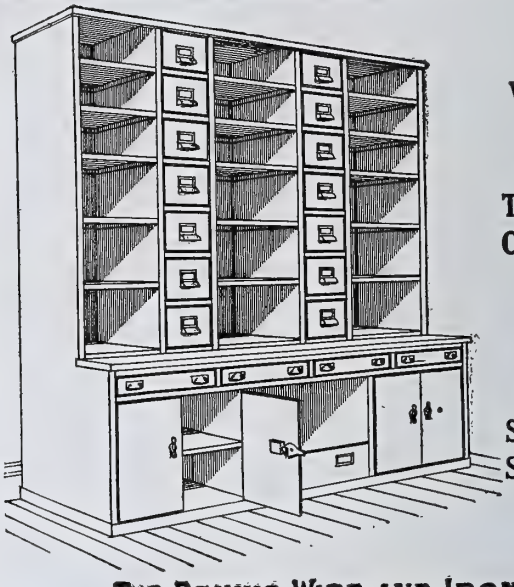
LEATHER GOODS—DIARIES—STATIONERY

Printers' and Bookbinders' Supplies

DENNISTEEL STANDARD SHELVING

Made in Canada

SAVES time, space and money for many of Canada's largest concerns. We build it on the "knock-down" system, and it can be erected quickly and easily with the aid of a screw driver. Stronger than wood, takes up less space, non-warping and positively FIREPROOF. The 20th century equipment for factories, stores, shops, etc.



We Have a Good Folder That You Can Read With Profit --- Where Shall We Send It?

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON CANADA

TORONTO OFFICE—36 Lombard Street
MONTREAL WINNIPEG HALIFAX

THE POPULAR PAPER

Bell-Fast Bond & Bell-Fast Ledger Paper

Has Gained This Prestige By Comparison

ASK YOUR PRINTER TO GIVE YOU SAMPLES AND PRICES OF BELL-FAST BOND & BELL-FAST LEDGER PAPER AND COMPARE WITH OTHER PAPERS

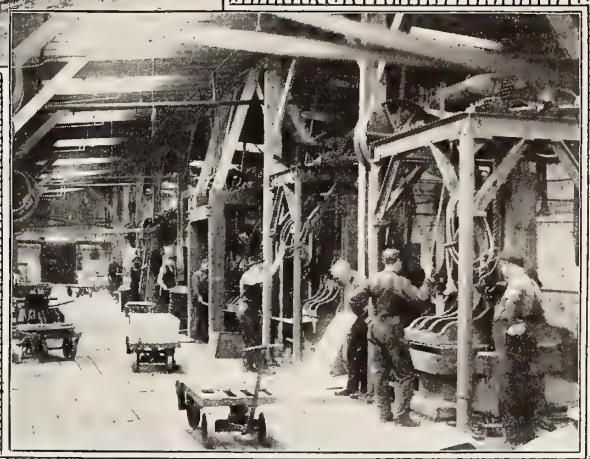
THIS WATERMARK MADE IN CANADA GUARANTEES QUALITY

We have an exceptional booklet proving the popularity of Bell-Fast Bond and Bell-Fast Ledger Paper, a copy of which we will gladly send you on request.

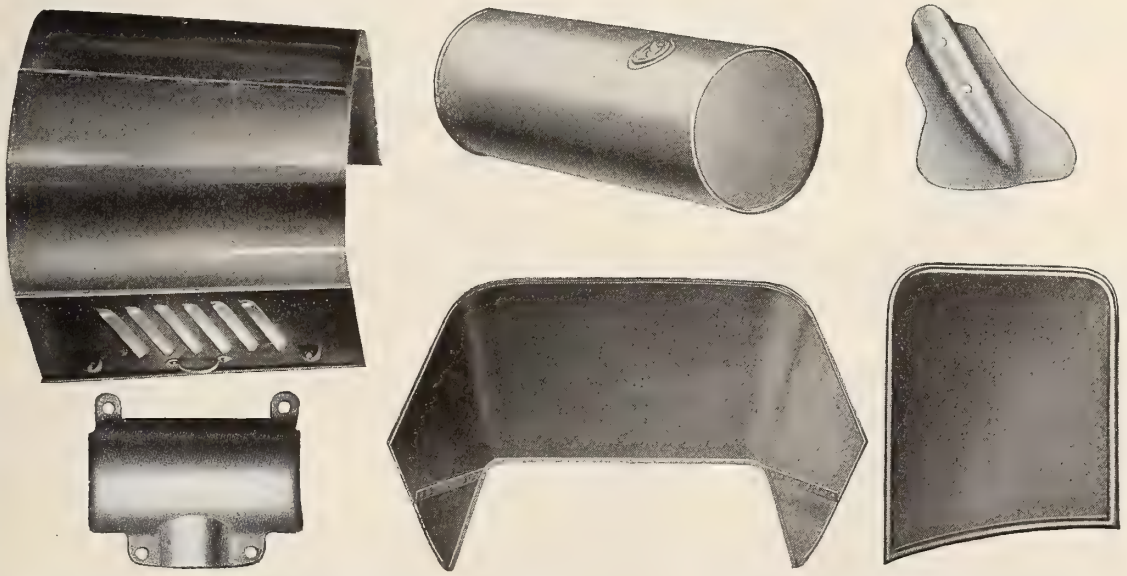
Howard Smith Paper Mills, Limited, Montreal

SHEET METAL STAMPINGS





OUR plant is equipped with batteries of heavy presses and hammers to take care of every class of stamped and deep drawn metal work. But that is not all. During the many years we have been developing this department, we have gathered together a staff of mechanics who thoroughly understand every phase of the work. We have every facility that assures accuracy, quality and prompt service. Your inquiry is solicited. Put your stamping problem up to us.



THE PEDLAR PEOPLE LIMITED

MANUFACTURERS OF

OSHAWA PEDLAR'S "PERFECT" SHEET-METAL PRODUCTS CANADA

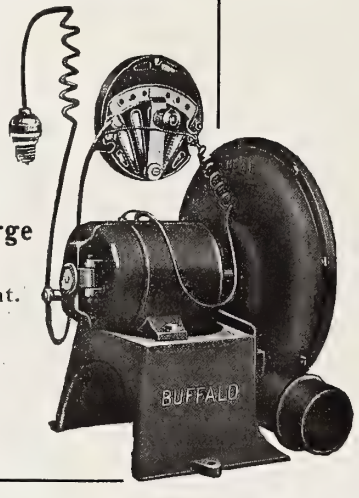
"Buffalo"

A dozen of these little fellows ought to be in every shop in Canada.

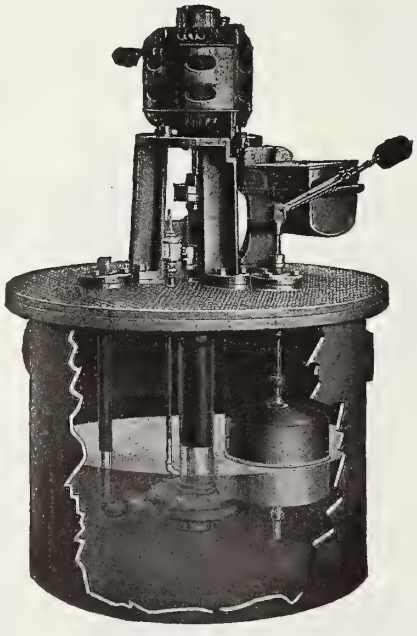
For blowing forge fires, exhausting gases and fumes, dust from small grinders and buffing machines, blowing scale for power hammers and chips and sawdust from woodworking machinery.

Ask for literature—write Dept. 14.

Canadian Blower & Forge Co.
Kitchener, Ont.



HIGH-CLASS
PUMPING MACHINERY
FOR EVERY SERVICE



The Smart-Turner Machine Company, Limited
Hamilton, Canada

Industries at Sidney, B.C.

Progress at This Centre on Vancouver Island Hampered by Lack of Transportation Facilities

Some interesting information about the progress of the industries located at Sidney, on Vancouver Island, was forthcoming at a "get together" dinner held last month by the Sidney Board of Trade. Visitors from Victoria were present and matters of general interest to both Victoria and Sidney were discussed.

Mr. J. H. Walton, manager of the Sidney Mills, told the story of the great difficulties he had had to meet and overcome in placing the Sidney Mills on an adequate operating basis. One of his principal difficulties was that of obtaining transportation facilities. This, to a limited extent, had been overcome, with the result that at the present time the industries of Sidney in common were obtaining from the Canadian Northern Railway a total of four to five cars a week, from the Great Northern a total of five cars a week, and from the C. P. R. a total of four cars a week. Of course it was not known how long this arrangement would last.

The railroads regard the southern end of Vancouver Island as territory that is not profitable, and yet in this same territory one-third of the total output of lumber of the entire coast of British Columbia was produced.

Kelp Reduction Works.

That by the first of June his company would have a pay roll in their Sidney plant of $3,000 per month was the statement of J. MacDonald Fahey, of the Canadian Kelp Products Company, whose $100,000 kelp production plant is one of the interesting industrial sights at Sidney. Mr. Fahey, who has fought for five years to establish the kelp industry, stated that the company's present plant can handle 125 tons of kelp a day. There was sufficient kelp in the company's beds here for their own needs and further to make possible the export of from $10,000,000 to $15,000,000 worth of potash annually.

The kelp ash which the company turned out last season was guaranteed to contain thirty per cent. potash, but an analysis of a sample made up of pinches from each unit of the total shipment showed the presence of 41.77 per cent. potash. In experimental work the company had successfully produced from kelp, after the potash and iodine had been removed, leather of excellent quality, and had also obtained algin gum, with which excellent waterproof materials had been produced.

He pointed out further that kelp, after the potash and iodine had been removed, was as nutritious as cheese, and as it was practically odorless, tasteless and colorless, formed an ideal base for innumerable products.

Mr. R. W. Mayhew, of the Sidney Rubber Roofing Company, stated that his company this year would show an increase of 300 per cent. over last year, and of 1,500 per cent. over the first year of operation. By the close of this year they would have in steady employment 150 men. Unfortunately, the transportation difficulties and an inadequate water supply for their special needs would make it difficult for them to carry on at Sidney. Mr. Mayhew complained bitterly that the Australian steamers would not break their hatches at Victoria. He pointed out that his company had recently received orders from New Zealand and Australia which would absorb the whole output of their plant for the next four months if they worked day and night, and on top of this they had just received a big repeat order from India. The Australia and New Zealand shipments had to be sent to Vancouver to be loaded on the Australian boats. This cost $3.50 a ton, as against a dollar a ton if the steamers would accept the shipments at Victoria.

"No Dearth of Timber"



Out of Boundless Forests

and woodland ranges the Bathurst Lumber Company select for your use the finest quality of Canadian Timber.

Our "BEAVER" Brand

White Cedar Shingles; Dressed or Rough Pine and Spruce, are admittedly the best for every purpose.

Get our price list, published monthly, and it is worth noting, we make a feature of prompt service.

BATHURST LUMBER CO.

LIMITED

Bathurst - New Brunswick



"In the Pathless Woods"

Good Things from Other Magazines

Industry and Home Gardens

How Some United States Manufacturers Have Helped Their Employees to Produce Food for Themselves by the Establishment of Factory Gardens

("Manufacturers' News")

The need of food during the present year is undoubtedly going to be even greater than it was in 1917. The food administration is trying to interest every man, woman and child in the country in the planting of home gardens and vegetable patches. During the last season many tracts of considerable size in the City of Chicago and in many other western communities were planted on the co-operative plan by a number of families living in the same neighborhood. The result in every instance was satisfactory and the experiment will be repeated on a larger scale this year. It is estimated that in the City of Chicago alone the number of lots which will be planted to vegetables will be doubled.

Big Factory Gardens

All this is good as far as it goes, but it does not go far enough. Down in New England the executives of several large manufacturing concerns are endeavoring to solve the problem of home-grown fruits and vegetables on a large scale.

The Whitcomb-Blaisdell Machine Tool Company of Worcester, Mass., last year organized the Paxton Potato Syndicate for the benefit of its employees. They sold shares at $5 each and returned to each shareholder four bushels of potatoes. The stockholders chose from among their number a committee of control, consisting of three from the machine shop and three from the foundry department. This committee, together with the president and treasurer of the company, managed the little syndicate. The land used for planting the crops—20 acres in all—was located near the Town of Paxton, six miles from Worcester, and from it the syndicate derived its name. The soil was recommended by a representative of the state agricultural department, who took a personal interest in the enterprise. About fifteen acres were seeded to potatoes and the rest to beans, carrots, onions and turnips. One ton of fertilizer was put on each acre. The result was highly satisfactory, as the shareholders raised 2,000 bushels of potatoes, 30 bushels of beans, 33 bushels of onions, 270 bushels of carrots and 76 bushels of turnips. After the crop was harvested the ground was prepared for the coming season. The men employed in the shop entered into the work of gardening and farming with hearty interest. Some of them made regular picnics out of the work and a temporary change in occupation gave them renewed strength for their daily occupations.

Of course, the company did not make any money out of the investment, but the returns which it received in other ways more than compensated for the small financial loss. On the other hand, the shareholders received four bushels of potatoes per share at $1.25 per bushel, which was considerably under the local market price. In estimating the net results of this experiment it must be taken into consideration that the crops raised in this shop garden were clear gain as far as the nation's food supply is concerned, and consequently the enterprise was of genuine benefit to the country at large.

Another concern which had considerable success in co-operative shop gardening is the Brown & Sharpe Manufacturing Company of Providence, R.I. The company secured, fertilized and ploughed the land and the men provided the seed and cultivation. The gardens were located in three different sections of the City of Providence, in neighborhoods populated by working people. Some of the land was leased and the use of the rest was donated by citizens or corporations. Under the supervision of the Brown & Sharpe Company over 500 gardens, covering 30 acres of land, were cultivated. The value of the crops produced from them was approximately $10,000. The men raised 4,000 bushels of potatoes, 254 bushels of beans, 223 bushels of tomatoes, 5½ tons of turnips, over two tons of carrots, three tons of cabbage, nearly one ton of parsnips, besides beets, squash, green corn, celery, etc. The work was under the superintendence of Luther D. Burlingame, industrial superintendent of the Brown & Sharpe Company, and was conducted in a systematic manner. A pleasing feature of the gardening was the enthusiasm with which the wives and children of the workmen participated. In order to stimulate interest in the garden, Mr. Burlingame arranged prize contests between the different plots as well as between individual gardens. He offered eighteen prizes for the best crops as to size and quality. Everybody was interested in this feature and there was much good-natured rivalry which contributed very much to increase the total of the crops.

A Good Example to Follow

It is to be hoped that manufacturers in the middle west will give a trial to a shop or factory garden during the coming season. If results like those indicated above are obtainable in New England, with its sterile soil, how much more could be done in a section where practically every acre is sure to produce tremendous crops. The original outlay would not be excessive, as plenty of waste land could be secured without rental charges. The plan of scattering the gardens over different parts of a city or town is to be highly recommended because it enables the families of the workmen to participate in the garden work. However, there is no use in undertaking this work in a haphazard manner, and any effort that is not thoroughly organized and carried on under expert supervision had better be discouraged.

Advertising as Insurance

The Company Which Continues to Advertise When it is Difficult to Fill Orders Will Reflect Progressive Management

("Marketing")

All oversold conditions present three dangerous temptations:

First, to cheapen the product.

Second, to reduce sales cost by reducing the sales force.

Third, to lessen or discontinue advertising.

Yielding to one or all is a questionable business procedure for the average institution, because:

Cheapening the product breeds dissatisfaction.

Reducing the sales force cripples the organization for the reactions which business cycles prove are inevitable.

Lessening or discontinuing advertising sacrifices previous effort, expenditures and prestige, and provides no anchor to the windward when adverse winds are blowing.

However, there are exceptions to these rules. Some products have been cheapened, selling prices raised, and the

Immediate Deliveries on Set and Cap Screws

Send in all your specifications. We can ship almost every size from stock.

TWIST DRILLS, REAMERS

High Speed and Carbon

We have recently added to our equipment at Plant No. 3 where these tools are manufactured, with a view to meeting the enormous demand which is being made upon us for our superior tools, and expect shortly to be able to give much better deliveries than we have been able to do in the past.

Please Send Us All Your Specifications

John Morrow Screw & Nut Company, Limited

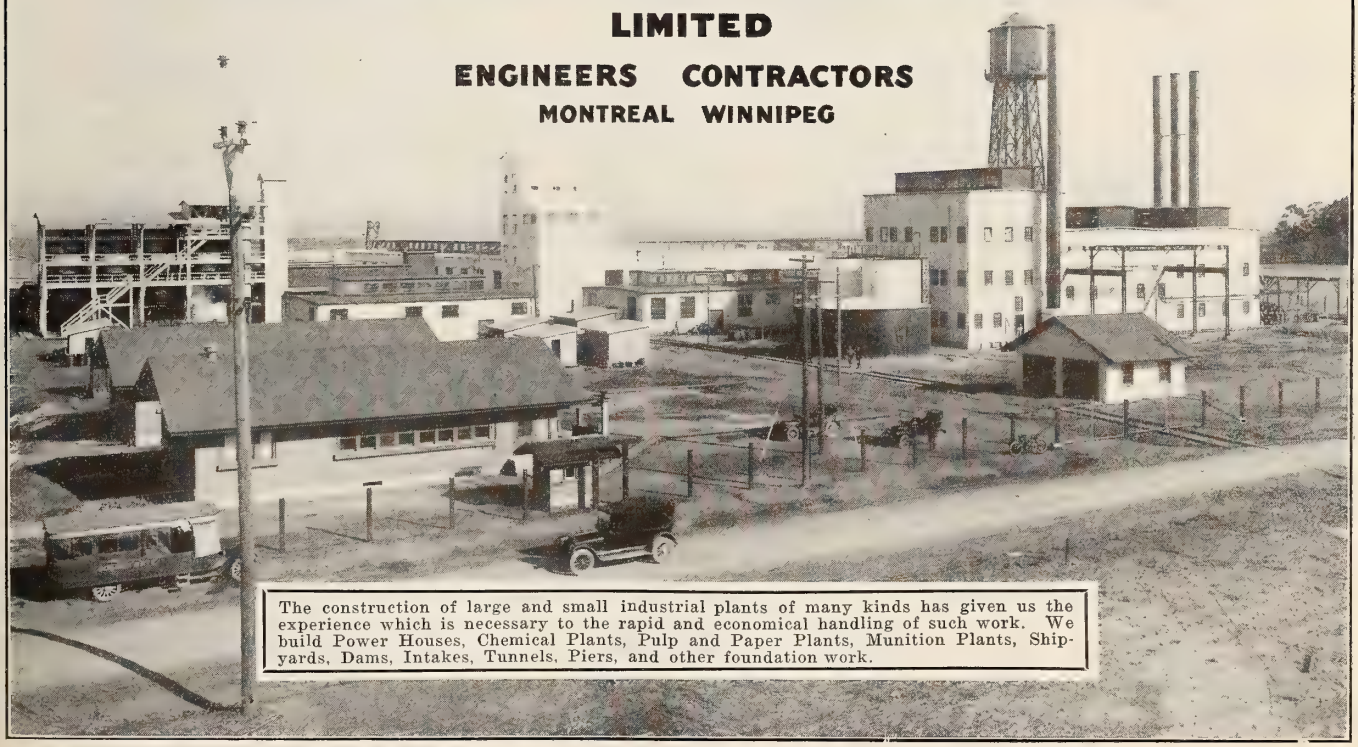
INGERSOLL - CANADA

THE FOUNDATION COMPANY

LIMITED

ENGINEERS CONTRACTORS

MONTREAL WINNIPEG



The construction of large and small industrial plants of many kinds has given us the experience which is necessary to the rapid and economical handling of such work. We build Power Houses, Chemical Plants, Pulp and Paper Plants, Munition Plants, Shipyards, Dams, Intakes, Tunnels, Piers, and other foundation work.

sales increased. Some concerns have sent their sales forces on a vacation or let them out entirely, and are still doing a big business. But, in most cases, the advertising is continued or increased.

Why should any wise business man yield in the first two temptations, yet sternly refuse to risk the third?

Obviously because he is unqualifiedly convinced that—

Advertising Is Business Insurance!

The thoughtful man looks ahead and provides for the future. He buys insurance when he is well and able to do so. He does not think of allowing his annual payment to lapse because he knows that he will lose the cumulative value of previous payments and eventually will be compelled to make up the deficit, or buy another policy at higher rates and increased premium. In equal manner do these conditions apply to advertising as business insurance.

It would be wiser for a man to forfeit his insurance one year and buy a new policy the next year than for a representative business institution to play an in-and-out game of advertising. No insurance company has as yet evolved a satisfactory method of guaranteeing the successful operation of a business institution on a dividend-paying basis, yet judicious advertising of a product that is right will accomplish this much desired result.

The phrases "successful operation" and "dividend-paying basis" have a different meaning to-day than they ever had before. No business can be successfully operated without every employee being able to earn a fair living wage. The business that thrives on the impoverished condition of its employees is a house of sand on a foundation of quicksand, unworthy of patronage, credit or association with concerns of honor.

No concern can truly be on a dividend-paying basis which does not share them with its employees to the extent of assuring their happiness and clean surroundings, freedom from danger and honest interest in their welfare at home as well as in the plant.

The public is becoming more and more interested in how a thing is produced, under what conditions and surroundings, so that they may better judge the intrinsic quality. You will see that this truth is consciously or subconsciously recognized and emphasized by leading advertisers.

Not many years ago no one thought of stamping an egg with the date it was laid, no one asked for certified milk, or pure foods and the methods of making them were not subjected to close public scrutiny, but they are to-day. Likewise will the policy of a company towards those in its employ be a deciding factor in the choice of its produce.

I do not imply unionism or non-unionism, but simply that practice of fairness which plainly denotes the character and human qualities of those who, in the same manner, decide the business policy and the quality of the product. By this line of reasoning we are persuaded that it is not only our duty to insure our business for the stockholders, but in addition thereto we have the greater responsibility of insuring the health, happiness and bread-winning power of the millions behind industrial enterprise, the employees, against the adjustment period.

Reflects Progressive Management

The company which continues to advertise when it is difficult to fill orders will reflect progressive management, which implies quality products and, more important, sincere consideration for the men producing such products. We can, and many of us do, insure the lives of those employees while

Mr. Manufacturer:

RAPID AND ECONOMICAL ERECTION OF THAT NEW BUILDING IS WHAT YOU WANT

John V. Gray Construction Co., Limited

General Contractors

"REAL SERVICE" **625 Confederation Life Bldg., Toronto**

In What State are Your Cement Floors and Walls?

They would be for all time Dustproof, Wearproof and Waterproof if treated with LAPIDOLITH before they become cracked and full of holes.

STEAM BOILERS, SPRING REPAIRS AND RENEWALS—Up-to-date Engineers are doing these with their own help by using our PLIBRICO JOINTLESS FIREBRICK AND PLIBRICO BOND High Temperature Cement. It will mean lower Coal Bills next winter. Also used in nosing furnaces of Ammunition Plants, Dutch Ovens, Retorts, Forges, Smelters, Saw Mill, Burners, etc.

Mill Supply Dept. BEVERIDGE PAPER CO., Limited, Montreal

STOCKS CARRIED FROM COAST TO COAST

They Used

Truscon System of Reinforced Concrete



Watt and Blackwell, Architects

HUNT BROS.' FLOUR MILL, LONDON, ONT.
Trussed Bars and Rib Bars used in this building

Archibald and Holmes, Contractors

Reinforced concrete is the modern method of fireproof building construction. It is used by the best Architects, Engineers and Contractors in all modern structures.

Truscon Building Products have been used in every type of building in every part of Canada. They are applicable to every size, type and style of structure and one or more of them can be used in every building. Whenever you have under consideration a factory, warehouse, power house, water tank, pavement, storage bin, store, cold storage plant, viaduct, pulp mill, railway shop, newspaper plant, tannery, lumber storage buildings or any other structure of concrete, steel or wood construction, you have use for Truscon Building Products.

Our large Engineering Department is composed of experts who have had technical training and wide experience in the engineering field, are familiar with every type of construction and have specialized in reinforced concrete. This experience in reinforced concrete in all its applications places this department in a position to furnish expert advice, together with valuable suggestions, which are given without cost to all parties contemplating building.

For Better Buildings Use
Truscon
BUILDING
PRODUCTS

Trussed Concrete Steel Company
of Canada, Limited
WALKERVILLE, ONTARIO

Montreal Toronto Winnipeg Calgary Vancouver

STRUCTURAL STEEL
and
BRIDGE BUILDERS



We build and erect all kinds of Structural Steel, Bridges, Roof Trusses, Bank and Office Railings, Stair Work, Elevator Grills, Fire Escapes, etc.

Over 5,000 Tons in Stock of
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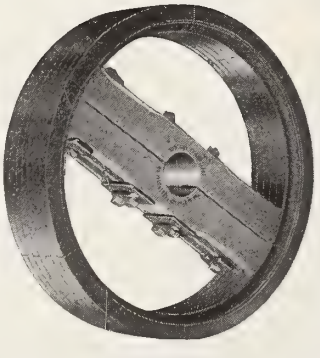
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By this course only can we successfully operate and keep our business on a dividend-paying basis in the newer meaning, with all that these phrases truly imply, and make.

New Uses for Our Woods

As More and More By-Product Industries Become Feasible the Utilization of Waste Will Bring True Economy by Throttling the Drain on Our Forest Supply

By Dr. JOHN S. BATES
("Canadian Forestry Journal")

We must not lose sight of the significance of wood in Canada's list of natural resources. Forest products are next in value to agriculture, the income being something over $200,000,000 annually. In studying pulp and paper industry now brings into the country a larger income than any other manufacturing industry, with the exception of munitions, and is an outstanding example of an export business yielding real money in distinction from war business largely based on domestic credits. At the present time it is out of the question to ship large quantities of wood products across the water, and we see Europe being drained of its limited supply to feed the war machine. In the future the Empire will turn to Canada for its supplies, particularly for the valuable soft-woods which fortunately predominate in this northern climate.

In considering the economies of forest products there are certain methods of utilization which are the main units and which are self-contained, such as lumber, pulp and paper, and wood distillation. The tendency has been to start with round wood from the forest for each process, so that control can be more certain and each plant can be independent. The possibilities for economy by co-ordinating one industry with another are becoming more apparent every day. The expansion of the main industries will bring about these new methods by very reason of their size, so that there will be enough wood waste at one centre to serve as raw material for a by-product plant. Already the kraft pulp plants in the east convert large quantities of slabs and edgings; the saw-mill waste in British Columbia offers opportunities for processes outside the range of the lumber industry. The practical requirement is that utilization must yield a financial profit. The close utilization in Europe is out of all proportion to Canadian conditions and we must wait for an increase and spreading of population. The rising cost of wood in Canada is in many ways a blessing, and it is only right to place a real value on wood as it stands in the forest. As more and more by-product industries become feasible, the utilization of waste will bring true economy by throttling the drain on our forest supply.

Looking at the problem in a broad way, the protection and reproduction of the forest overshadows all other duties. The most effective utilization of the wood and waste that is now

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Packing Case Building	Peters Cartridge Co.	Kings Mills, Ohio	$170,000.00
Shooting Gallery	" " "	" " "	45,000.00
Coal Conveyor	" " "	" " "	12,000.00
Extensions to Plant	Ford Motor Co.	Ford, Ont.	240,000.00
Reinforced Concrete Bridge	Canadian Pacific Railway	North Toronto	175,000.00
Freight Shed	" " "	Lambton, Ont.	11,000.00
Additions to Factory	Nicholson File Co.	Port Hope, Ont.	58,000.00
Power Development Work	Hydro-Electric Power Com.	Big Chute, Severn R.	21,000.00
Extensions to Transformer House, Power Lines, etc.	" " " "	Niagara Falls, Ont.	83,000.00
Addition to Residence	G. M. McGregor	Windsor, Ont.	14,000.00
Addition to Factory	Canadian Lamp & Stamping Co.	Ford, Ont.	21,000.00
Addition to Factory	Kelsey Wheel Co.	Windsor, Ont.	2,000.00
Completion of Collegiate Institute Building	Board of Education	" "	75,000.00
Alterations in Plant	Harris Abattoir Co.	West Toronto	3,500.00
Extensions to Plant	Dominion Forge & Stamping Co.	Ford, Ont.	90,000.00
Alterations to Plant	Canadian Salt Co.	Windsor, Ont.	10,000.00
		Total	$1,030,500.00

Of this total $660,000.00 worth of work was done on a percentage basis.

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coming out will not counterbalance the loss of forest wealth, and the aim should be to build up in Canada a permanent and ever-expanding forest. It is to the foresters, the lumbermen, the federal and provincial governments that we must look for the carrying out of this policy. The public may well take a renewed interest in fire protection, forest reserves, tree planting, more rigid cutting laws, and measures for natural reproduction. Conditions are favored by the ownership of such large proportions of the forest areas by the governments.

Logging is such a definite proposition each year that it is hard to change the methods so long in use. We know that about 25 per cent. of the tree is left in the woods in the form of limbs, tops, stumps, etc. In general, it is not likely that new processes will go far towards saving this material, because there is already so much by-product wood within easier reach at the manufacturing plants. Burning of slash in the wet seasons appears to be the main duty at present in order to curb forest fires.

New Conditions Ahead

The lumber industry has had a long history in Canada, but now faces new conditions. The manufacture has been so simple and the competition so light that lumbermen have not been forced to introduce radical changes. Although the plants are widely scattered and the number of specially-trained men is small, it is not going too far to say that the lumbermen must get together for an intensive study of their industry. No outside forces can accomplish what they themselves can do by comparing the mechanical and physical properties of the different woods, extending the use of a species where this is legitimate, eliminating decay in lumber yards, kiln-drying and finishing woods to meet special requirements, selecting timber on the basis of quality and welcoming the co-operation of industries and experts for the conversion of waste. Saw-mill waste amounts to about 40 per cent. of the original tree and consists of slabs, edgings, trimmings, sawdust, bark, shavings, seasoning waste, shaping waste and culls. There are many chances for extending the by-product manufacture of small wooden articles by mechanical processes. A new development in Canada is the chipping and baling of saw-mill waste for shipment to chemical pulp mills. Spruce and white pine have been the main-stays of the lumber industry; Douglas fir is now coming to be recognized as Canada's foremost structural timber, and the immense supplies in British Columbia will be a source of great wealth.

Openings for Enterprise

The pulp and paper industry is enjoying a development which is without parallel among the wood-using processes of the country. The export figures is now over $50,000,000 annually, being half of the total export value of all forest products. The restrictions on pulpwood export and the duty free market for pulp and paper in the United States have rapidly increased manufacture within the country, and the ratio is improving every year. From the simple ground-wood process more and more attention has been turned to unbleached sulphite pulp, bleached sulphite pulp, kraft pulp, newsprint paper and high-grade papers. The production of soda pulp is still only 21 tons per day, while the imports amount to something like $500,000 per year, and there seems

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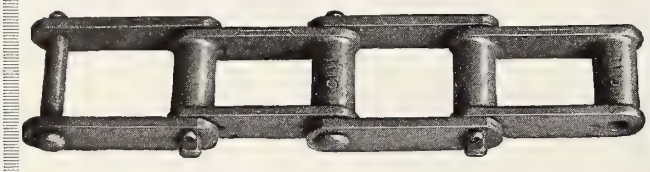
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to be an opening for the utilization of some of the poplar which troubles the forester in connection with forest reproduction. Waste sulphite liquor still carries large quantities of wood material down the rivers, but serious attention is being given to the possibilities of recovering ethyl alcohol, tanning solution and binders. Products of surprising variety can be made from kraft pulp, and it is likely that paper twine, paper textiles and leather substitutes will be on our list of forest products in due course.

Acetone for War Uses

Among the distillation processes the destructive distillation of hardwoods is of main importance in Canada. It is gratifying that manufacture is carried beyond the stage of crude products and that the specially refined and derived products are made in Canada for both local and export trade. The process has been vital in that it has supplied practically all of the methyl alcohol and acetic acid, so essential in the scheme of modern civilization. The war has given a new stimulus by reason of the tremendous demand for acetone as a solvent in the manufacture of cordite, the well-known British propellent explosive. This same pressure has introduced in Canada new chemical processes for acetone and acetic acid which may have a serious effect on the distillation of hardwoods. While hardwood distillation is rather crude, it survives by reason of the variety of useful products —wood alcohol, emthyl acetone, formaldehyde, acetic acid, acetic anhydride, acetone, acetone oils, charcoal, creosote oils, etc. An important development is the Seaman process now established in the United States for the distillation of hardwood sawdust and finely divided mill waste.

The Day of Light

Sahara Desert, According to Prophecy of Italian Chemist, Will Supply Over 1,000 Times Power Now Needed by the Whole Civilized World

("The Little Journal")

When the rays of the sun strike the green leaves of a plant, carbonic acid gas and water vapor or moisture are gathered in from the air and these within the remarkable laboratory of every green leaf are turned into sugar. At the same time oxygen is set free, back into the air. The reaction requires heat, and the sun's rays provide it.

The plant operates other chemical factories and these transform sugar into starch, which is stored in the seeds to feed each sprouting plant until it gets big enough to grow green leaves and make sugar and starch for itself. Starch is also transformed within the plant into gums and cellulose, and the structural basis of wood is cellulose. Please observe also that the sun provides the heat for all of these reactions.

When we burn wood or coal we reverse the process; we draw upon the oxygen that has been set free into the air when this or some other tree grew and we combine or burn it with the carbon and hydrogen which is in the wood or coal, to carbonic acid gas and water again. That is the great cycle of vegetable life, beginning with carbonic acid gas and water and ending in carbonic acid gas and water. The reversed reaction gives off heat instead of requiring it, and that is why we burn wood or coal: to get the heat back that the sun provided long ago. White smoke is mostly steam and carbonic acid gas. Black smoke is mostly carbon that got frozen out in the fire or couldn't find oxygen enough to combine to carbonic acid gas again.


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NEWPORT

Professor Giacomo Ciamician, of Bologna, in an address before the Eighth International Congress of Applied Chemistry, asked why we use only the fossil energy of the sun—which is what we do when we burn coal. Why not get the power direct? If plants do this thing, he insisted there must be a way. There is plenty of water, it is easy to make carbon dioxide, and there is the sun. The point is, of course, to make available the radiant energy of the sun's rays and put it to use, which the plants can do and we cannot—as yet—for lack of adequate research. The professor felt sure, however, that this riddle will be solved some day, and then he made computations as to what we may do after the way has been discovered. Using the sun for only six hours of every twenty-four on desert lands, and making generous allowances for good measure and waste, he concluded that the sun would deliver in energy taken direct from its rays, instead of by our roundabout method of recovering it by burning coal, the daily power value of 2,500 tons of coal per square mile. We mine in the United States about 600 million tons of coal a year. The desert of Sahara alone, receives *every day* in solar energy the equivalent of *six billion* tons of coal.

Progress Towards Sun Power

Then he showed a long list of photo-chemical processes which indicate progress in research towards "The Day of Light,"—towards sun power. He prophesied that in time tropical countries will be thickly populated, that on their arid lands there will spring up industrial colonies without smoke or smokestacks but with forests of glass extending over their plains and glass buildings everywhere. Inside of these will take place those processes that are still the guarded secrets of trees and grass. But when these are mastered human industry will make them bear far more than Nature, because Nature is not in a hurry and mankind is.

So, some day it may not even be necessary to dig coal any more or to worry about the supply or the price of it. With this enlightenment, when it comes, we shall not need coal, so long as the sun shines. And when the sun ceases to shine we shall not want anything at all. Maybe the man who would shortly have made this discovery has been killed in the war!

War Gardening for Industries

With the Demand for Food Becoming Constantly More Pressing Many Large Industrial Concerns Have Promoted Gardening Among Employees

By CHARLES LATHEROP PACK
("American Industries")

Besides the material gain the garden work promoted a fine spirit of democracy and fellowship among the men. The president of the company down to the humblest employee had a plot and officers and employees working together as they did, found mutual interests and fellowship therein."

This is the testimonial from one of the large manufacturing companies of New England as to the good results which it obtained from encouraging and assisting its employees to plant gardens. The work was done primarily for the purpose of helping to win the war through an increase of food production; but as will readily be seen from the letter of one of the head officials, there were a number of incidental

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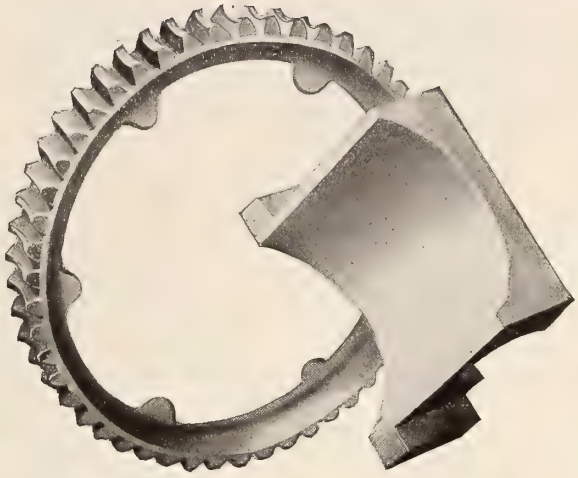
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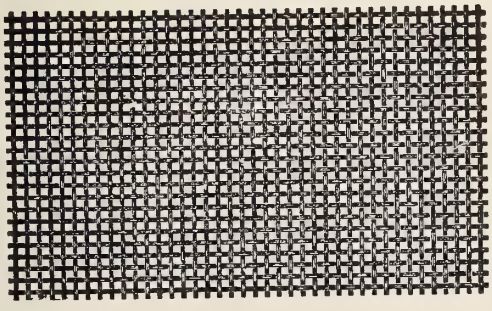


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benefits which should be lasting and far-reaching in their effects.

With the demand for food which has been constantly becoming more and more pressing, many of the large industrial concerns throughout the country are doing their patriotic bit in this direction by taking up tracts of idle land of their own or leased property, and turning them into a large number of individual garden plots for their workers. The great impelling motive which should actuate every manufacturer who has not already made plans for such an enterprise, must of course be that of patriotism—the desire to help fill up the food shortage. At the same time he will find that he has made an excellent investment and that every minute of time, every dollar of money that he puts into the "war garden" movement, will repay him in other ways besides the consciousness of having done his duty to country.

Industries Which Helped

Illustrative of the varied character of the industries which have tested the plan and found it productive of excellent results, we might mention a few of the concerns which furnished garden tracts for their men last season: American Rolling Mill Company, Middletown, Ohio; Inspiration Consolidated Copper Company, Arizona; Pennsylvania Railroad Company; Delaware and Hudson Coal Company; General Electric Company, Schenectady, N.Y.; Oliver Chilled Plow Company, South Bend, Ind.; Brown & Sharpe Manufacturing Co., Providence, R.I.; Foster, Merriam & Co., Meriden, Conn.; Berlin Mills Co., Berlin, N.H.; Globe Machine and Stamping Co., Cleveland, O., and numerous others. In one case, that of the Inspiration Copper Company, as much as 217 acres of land was divided up for the men and cultivated by them. The General Electric Company ploughed up sixty acres of river bottom land which had never before been put to any practical use; and on it more than 1,500 employees grew all the fresh vegetables they needed for themselves and their families all summer long, with a surplus for winter use.

Assistance Needed at Outset

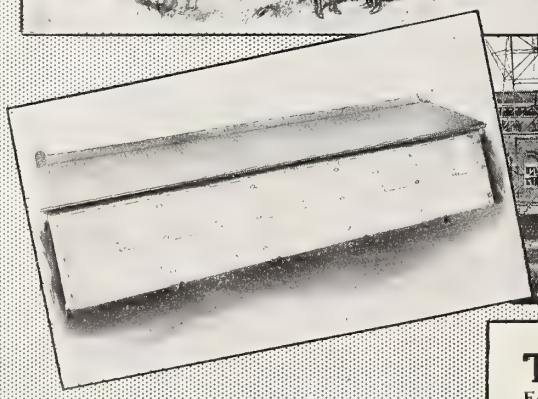
Assistance is usually required by the men in getting started; and this is given in the form of ploughing the land for them with a large tractor; and of supplying the fertilizer and seed which the men are allowed to pay for on easy installments. It is given at cost and in some cases part of the fertilizer or seed, or both, are furnished free. In addition a supervisor or instructor is needed to look after the project and explain to the men some of the principles of gardening which they do not understand.

From the standpoint of national preparedness the help which can be given to the United States through the establishment of home war gardens by industrial workers wherever a tract of vacant land can be secured for them, will be of great value for the following reasons: 1. It will increase the food supply. 2. It will relieve the freight transportation situation by releasing a large number of cars now used in hauling market supplies for other purposes. 3. It will help out the farm labor shortage problem and take from the shoulders of the farmer some of the burden of food production which he is carrying.

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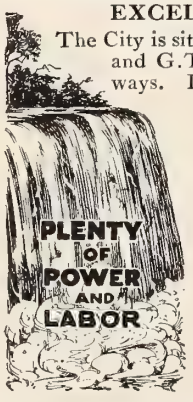
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help themselves than by giving them a chance to raise some of their own food. That they will appreciate this goes without saying. Thousands of the men will be glad of the opportunity it affords them of doing a bit more for their country than they have been able to do. All of them will be thankful for the cut in their grocery and market bills which will be effected. The favorable reaction upon the firm is obvious. For the majority of demands by employees for increase in wages are based upon the constantly increasing cost of living.

These demands require little justification for the increased price of all commodities is generally known. But if the employees are given a chance to raise a stock of staple commodities they will have less recourse to stores for their supplies, and will find a marked decrease in their living expenses. There will be one less reason for asking for an increase in wages. If a general advance in the pay roll is avoided, this plan of factory gardens will be placed immediately upon the profit rather than the loss side of the ledger. Another way in which the plan works to the profit of the firm is in good will which is built among the employees; and no one can estimate accurately the result of this in increased efficiency and loyalty. The factory garden is a splendid agent in developing *esprit de corps*. They will find in working side by side with their fellow employees in the garden a friendly rivalry and competition which it is difficult to establish in any other way.

Wives and Children Help

The wives and children of the employees are always glad to lend a helping hand in this kind of work. They realize the value and the importance of it. The wife's interest is due largely to the fact that she is the member of the family who is largely responsible for what appears on the table. If she can get fresh vegetables from her own garden she prefers them to any other kind.

As regards the children, if they are given a little encouragement and proper training, they enjoy helping in the garden. It is a pleasure and a novelty and an opportunity to learn something new which they welcome. Then, too, it affords the wife an opportunity to can, dry and pickle a large quantity of vegetables and fruits for winter use.

Methods of Stimulating Interest

The war garden conducted by a manufacturing or industrial plant offers the opportunity for exhibits both of the vegetables as they are grown during the season and of the canned products. In addition to numerous cash prizes and ribbons which were awarded in many places last year by local committees and by different companies, the National War Garden Commission distributed a large number of cash prizes and national certificates of merit. The Commission sent out from its Washington headquarters last year more than 2,000,000 of its booklets telling how to make and care for a garden. These are sent to anyone on request. It is hoped that the record of last year will be far surpassed and that this spring and summer will see at least 10,000,000 home gardens, many of them within the shadow of the smoking stacks of industry. The aggregate amount of food which can be raised in this way is almost incalculable; and it will do an inestimable amount of good, not only in helping to feed the nation and its armies and our Allies but in bettering the condition of the employee, making him happier and more contented and giving him a sort of side line or hobby, which he will take to with avidity during his hours of leisure from the factory.

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Fuel from a Transportation Standpoint

Being Part of an Interesting Paper Read by W. M. Neal, Secretary of the Canadian Railway War Board, before the First General Professional Meeting of the Canadian Society of Civil Engineers

(From "The Canadian Engineer")

No gentleman in this room needs to be reminded of the close and intimate connection between the humble coal pile in his cellar and the pride and comfort of the loftier apartments in his house. We may in the past have treated the coal bin as a mere poor relation or humble servant. We gave it the poorest room in the house. We even hired other people to attend to it so as not to have to soil our fingers by contact with the fuel problem, but nowadays I think one can observe a much more kindly attitude toward this humble factor in our domestic arrangements. We have been forced, as it were, to enter into diplomatic relations with the coal bin and to treat it with consideration and very great respect.

Consumption by Railways

The greatest coal bin in the Dominion of Canada is the coal bin of the railway companies. Many of you gentlemen have seen some of the young mountains of coal which the transportation companies are forced to maintain at their terminal points. There are in Canada over 5,000 locomotives whose appetites require an average ration of from 100 to 160 pounds of coal for every mile run. The engine which drew some of you gentlemen from Montreal to Toronto last night burned not less than sixteen and a half tons of bituminous coal. If we allow that the average tender on the average engine holds ten tons of coal, then the requirements of the railways for a single loading of their tenders amount to over fifty thousand tons. The total coal consumption of the railways of Canada in the last year for which Ottawa gives official figures (1916) was 8,995,123 tons, which cost them $27,961,186. This was almost as much as the total Canadian import of bituminous coal and slack in the same year.

Only Beginning of Problem

But, of course, what the railways themselves consume is only the beginning of the coal problem for the railway managers. Although we imported only about 9,000,000 tons of bituminous coal and slack in 1916, the railways hauled that year 18,122,835 tons. In addition to this they hauled 7,057,628 tons of anthracite coal and 1,772,854 tons of coke. The hauling of fuel both for themselves and the public amounted to approximately 25,000,000 tons, or over one-fifth of the total freight tonnage carried by all the railways of Canada that year. It was four times the weight of the ore carried and twice the weight of the total products of manufacture which were carried by the railways. It required the service of 29,948 trains of 23 cars per train, or the exclusive service for one year of approximately 1,000 freight engines and 23,000 freight cars.

The weight of bituminous coal carried by the railways runs, as a rule, just a trifle less than the weight of all the grain produced in the Dominion.

I give you these figures to impress upon you the extraordinarily intimate connection between the coal situation and the railways of Canada. I cannot refrain from remarking, just in passing, that although coal carrying represents such a great part of railway work, it does not represent a proportionate part of railway earnings. Coal is carried farther in Canada for less money than in any other country in the

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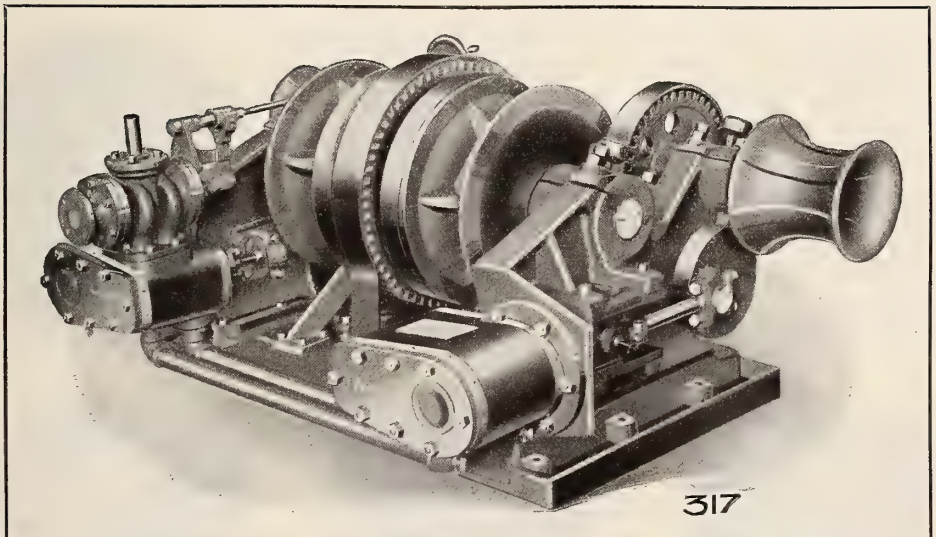
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world. It costs the coal dealer less for the freight on a ton of coal transported sixty miles than to team that same ton one mile in the City of Montreal or Toronto. The recent rail rate increases give the railway about 15 cents per ton more than before on an average anthracite shipment from the mines to Toronto. One hears a great deal about this increase, yet the general increase of 66⅔ per cent. in teaming costs due to increased price of oats, labor and horseflesh has scarcely been mentioned in the public press.

Now, I intend first of all to outline roughly the machinery of coal distribution in Canada as it existed before the war. It is necessary to divide the country into five districts, according to the fuel situation in each. I will then try to show what each district used, where it obtained its supply and how.

Machinery of Coal Distribution

Starting in the east, let us define District No. 1. It reached from Halifax to, say, Montreal. It was supplied with bituminous coal from the Nova Scotia and Cape Breton mines. This coal was distributed partly by rail, but chiefly by boat. In 1913, the last normal year, the Dominion Coal Company distributed 1¾ million tons by boat in the St. Lawrence alone, and the Nova Scotia Steel Company another ½ million. The famous, or infamous *Storstadt* which sank the *Empress of Ireland*, was one of the fleet of vessels distributing this coal. Very little of it, I might say, was consumed farther west than Montreal. Nova Scotia and New Brunswick consumed quantities in addition to the St. Lawrence requirements. Much of this, also, before the war was carried by steamer or by the humbler but more picturesque schooners of this region.

District 2, overlapping District 1 to some extent, reached, one might say, from Quebec City and towns like Sherbrooke, P. Q., and St. Johns, P.Q., west to Windsor and Sarnia and north to Sudbury, North Bay and Cochrane. This was, and is, the great coal importing area of Canada. It is here that the major portion of our anthracite coal was consumed and the chief share of bituminous coal was converted into energy and manufactured goods. It came by three different means —(1) by rail, (2) by water, and (3) by car-ferry. The chief rail points from which coal passed directly into Ontario were Black Rock, Victoria Park, Suspension Bridge, Niagara Falls and Bridgeburg. These are the points we call the Niagara Frontier—where special precautions had to be taken this past winter, as I shall describe later on.

Another direct rail connection from District 2 to the United States is, of course, at the Soo, but no coal of any account passes here.

Of the car-ferry connections the largest are at Sarnia-Port Huron and Windsor-Detroit. A considerable amount of Illinois coal passes here. Much more crosses Lake Erie from Cleveland to Port Stanley; Ashtabula to Port Dover; Ashtabula to Port Burwell; and Lake Ontario from Ogdensburg to Prescott and Charlotte to Cobourg. I might say that practically the only traffic from Port Burwell is empty coal cars southbound and loaded coal cars north. This one little port accounts for 54 cars of coal per day in good weather.

Traffic by Water

So much for the direct rail connections and the car ferries. There is still a traffic in coal schooners and steamers of a sort plying on Lake Ontario from Oswego to Kingston or Toronto, and on Lake Erie from the American coal ports to the Canadian ports I have just named.

These are the coal-carrying connections between District 2 and the American coal fields. The coal thus received is

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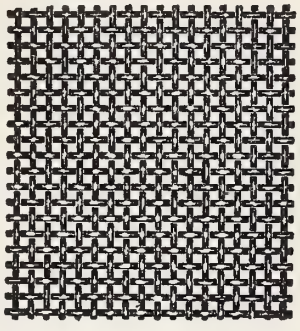
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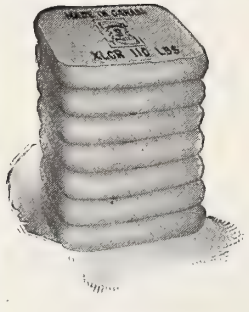
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In District No. 3 let us place all the north shore of Lake Superior west to the eastern boundary of Manitoba. In this region, Port Arthur and Fort William are the central points. Another port of which little is heard is Jackfish, a C.P.R. point where this company obtains enough coal by water during the summer to supply the North Shore divisions all year round, without having to burden the line itself by hauling coal via Toronto and Sudbury. That, of course, is a digression from my point. The centres of public distribution are the Twin Cities. Many of the vessels which come north for cargoes of east-bound grain bring coal on the up voyage. This coal is scattered westward by the returning empty grain cars from Fort William to Winnipeg. How far west of Winnipeg this movement goes I cannot say definitely, as it depends upon the production and movement of Western coal. Here the American coal coming up the lakes begins to come in competition with the coal from our Western foothills. The greater the production of Western coal the farther east it comes.

District No. 4 might be said to include Winnipeg and the eastern portion of British Columbia, overlapping District 3 to some extent. In its most westerly extension it is fed almost exclusively from the Alberta coal fields.

Of District No. 5 I need only say a word. This takes in the western slope of British Columbia. The railways here use coal and oil fuel. The supplies of coal were and are from Washington and Nanaimo. The consumption is not large and the problem of distribution is not great.

Developments Since War

There, Mr. Chairman and gentlemen, you have the outlines of the fuel situation from a transportation viewpoint as it existed before the war. I will take now only a few moments to explain the changes which war has brought about in each district.

In District 1, the steamers plying from Sydney to St. John, Halifax, Quebec and Montreal, have, so to speak, enlisted. The distribution of coal from these mines falls entirely, therefore, upon the railways. The two million tons distributed by boat in the St. Lawrence are now carried by rail. The schooners on the coasts of Nova Scotia and New Brunswick continue to do their share, but even there the railways have had to assume an extra burden. I might add that this Eastern Canadian bituminous coal is now moving into District 2 as far as Ottawa and Cornwall. The increased consumption of coal in District 1 has made necessary the use of American coal here too, which is hauled north via Montreal and then east.

In Districts 2 and 3 there have been two changes: 1st, a falling-off of water-carriage of coal on the lakes, and 2nd, the congestion of the American roads which made it impossible to send the proper number of coal cars south for coal on account of the danger that they would be lost down there even before they could be loaded at the mines. The loss of the water-carriers was perhaps the more serious of these two considerations. From these three districts a tremendous proportion of the water-carriers have disappeared. Practically the entire burden—amounting, as I said, to 2,000,000 tons or 50,000 carloads for St. Lawrence points alone—has been forced upon the railways. They met this condition by (1st) building more coal cars, (2nd) by converting sand and gravel cars for coal use, (3rd) by enforcing economy in their own use of coal, (4th) by pressing box cars into the coal-carrying service, and (5th) by trying to move as much coal as possible in the summer season when the traffic may take advantage of easier transportation conditions. By a cam-

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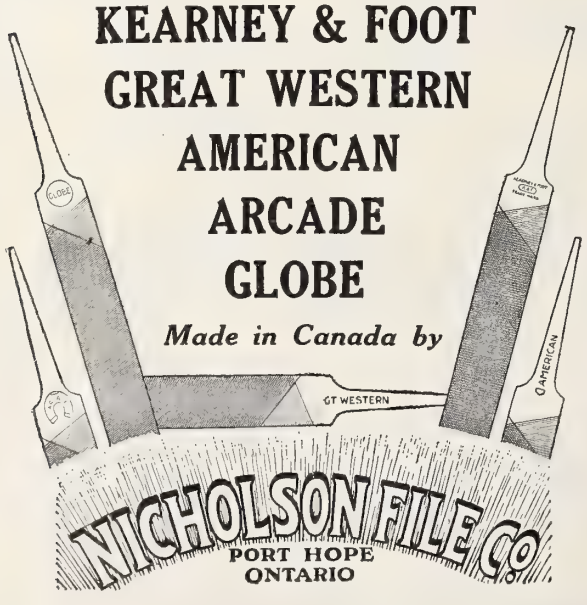
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paign among the big shippers asking them to accept coal deliveries last summer instead of in the fall, much good was accomplished. With respect to the danger of losing our coal cars in the United States, thousands of tons of coal were worked through the American tangle in returning Canadian "empty" box cars. The use of box cars for coal carrying can only be applied from mines and docks where there are devices for loading and unloading these cars with coal. Fortunately, these devices are already established in the West, *i.e.*, Districts 3 and 4, otherwise we should have had a lot of trouble sending to Winnipeg special coal cars instead of using the westbound empty box cars.

I must make special reference to the work done on the Niagara frontier this winter by the administrative committee of the Canadian Railway War Board. In this work all roads co-operated to the fullest extent. The incoming coal cars at Black Rock, Bridgeburg, Victoria Park, Niagara Falls and Suspension Bridge were forwarded rapidly to Hamilton, Toronto, London and other points without respect to what road they were routed by. In spite of blizzards and exceptional weather conditions about 5,000 cars (chiefly coal) were put through in a period of two months over and above what would have been regarded as a normal movement. This meant to the Canadian consumers about 150,000 tons of coal extra.

So much for Districts 1, 2 and 3. In District 4, that is, from Winnipeg to the eastern half of British Columbia, the question is now being discussed whether the Western bituminous mines could not look after the bituminous requirements of that district while the lignite, being compressed into briquettes, might replace the anthracite. This is a consummation devoutly to be desired, and members of the Canadian Railway War Board have already taken up the question with a view to being ready, as far as transportation is concerned, to make Western Canada, by the winter of 1919-20, as nearly self-sufficient as possible.

Uniform Accident Statistics

An Accurate Accident Record, With Results Figured on the Basis of a Tangible Unit of Measure, is a Prime Requisite for Establishment of a Safety Department

By G. G. KINGSLEY
(From "Safety Engineering")

Accident statistics are considered by many to be the dryest, least comprehensive and most uninteresting part of the accident prevention problem. I do not doubt that they are, if kept as a great many records are kept, without regard to accuracy and with no real basis for the determination of comparative results. If they are the dryest, they are one of the most necessary parts of a successful safety organization, be it insurance, manufacturers' or State, for they measure results.

I think all will concede that an accurate accident record, with results figured on the basis of a tangible unit of measure, is one of the prime requisites for the establishment of a safety department. To say that so many accidents happened per 100 employees does not mean a thing, for in all probability the number of employees is only averaged or the number of employees at the end of the unit period is used to figure the frequency. Yet this is the way the accident records are kept in a majority of cases and the severity of the accident is very rarely taken into account.

The object of keeping accident records is to measure the results of safety work through organized effort. What is the

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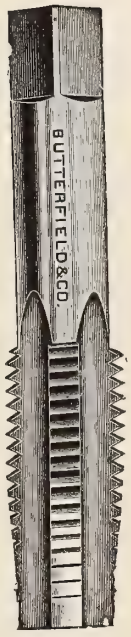
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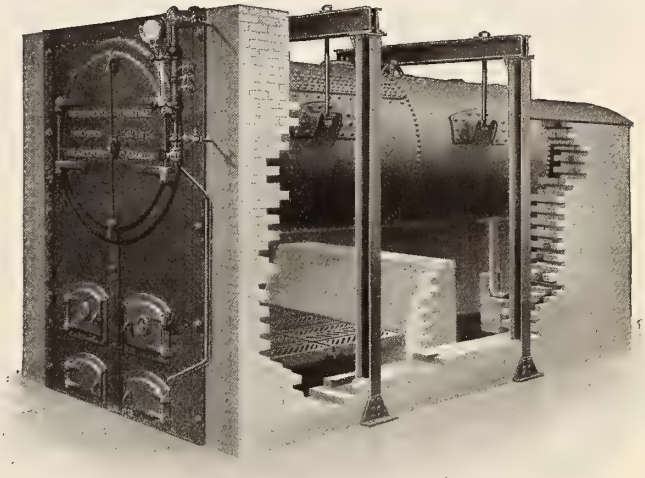
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use of measuring if one does not measure correctly? The report of the Committee on Statistics and Compensation Insurance Boards and Commissions, in the *Monthly Review* of October, 1917, gives some very sound and illuminating opinions as to how accident statistics should be kept, and shows us how to measure accidents, using an accurate unit of measure, the 300-day worker.

The 300-day Unit of Measurement

The 300-day worker is defined as one who works 300 days a year for 10 hours a day, or 3,000 hours a year.

An example will best illustrate the use of the 300-day worker as a unit of measure. It is determined that a plant works 300,000 hours per unit of time. That is, if one man did all the work it would require 300,000 hours for him to do it in the unit period. It is also the sum of the actual number of hours worked by all men in the plant. Divide this by 3,000 hours, the unit of measure, and you have one hundred 300-day workers. There may have been an average number of 275 or 350 employees for the unit period, but there can only be a certain number of 300-day workers. Suppose there have been 10 lost-time accidents during the year; the number of 300-day workers, 100, divided by the number of accidents, 10, will give you the accident frequency of 10 for every one hundred 300-day workers. Again, suppose that 250 hours were lost as a result of the 10 accidents; 250 hours, divided by the number of 300-day workers, gives us 2.5 hours lost per 300-day worker, which is the severity rate. Don't you see that all figures are based on the 300-day worker, and that the 300-day worker is a very convenient and accurate unit of measure?

Using the above method of figuring accident rates, the results will be comparable from month to month or from year to year as the case may be, and one will be able to note the progress made without the fear that he is "kidding himself along."

Why should not the State adopt a standard method for keeping accident records? It is no more trouble to keep them in one way than it is in another. As the Standard Cost System adopted by the American railways enables them to measure their efficiency and show the result of their efforts in a comparative way, so would a Standard Accident Statistical System adopted by the State or nation enable us to measure our results in an accurate and comparative way

Advantage of Standard Statistics

If standard accident statistical methods were adopted, one can see that if one plant manufacturing the same article as another had a better accident record than the other, it would know that the results were obtained by using the same method and the same unit of measure. This would enable the concern having the low record to compare figures and investigate and find out wherein it was lax and to remedy the laxity as found.

We have tried out the foregoing method of keeping our accident record and up to date we find that it is highly satisfactory. It will enable us to use these figures in figuring the accident efficiency for our various departments, knowing that we are not working an injustice by having our results computed on a false basis. It will also enable us to compare our results with those obtained by the Government in its research work.

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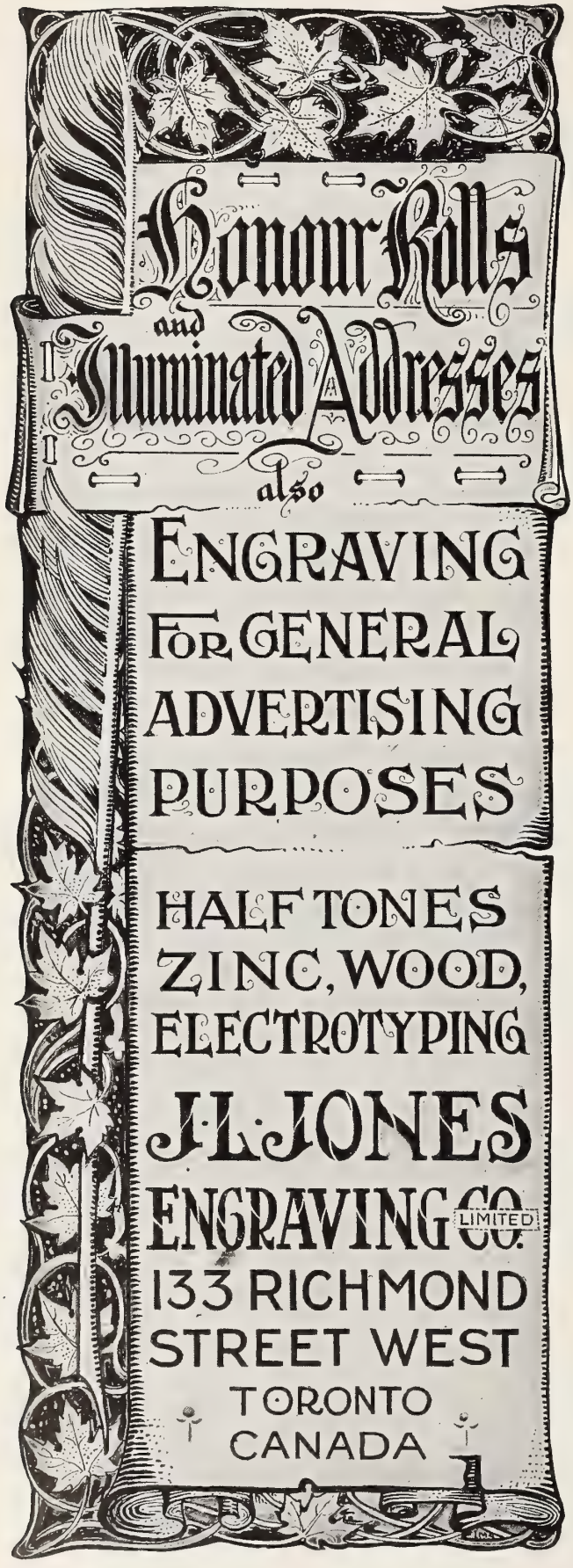
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Importance of Maintenance

Winter Impairment of Automatic Fire Control Due in Very Large Degree to Wrong Mental Attitude on Part of Owners Towards Mechanical Agency

(From "Construction")

If there is any one thing in the management of his property that is more vital to the building owner than any other, it is its maintenance. Unless a building is properly cared for and maintained, it soon deteriorates, becomes unattractive, unsanitary, a menace with respect to fire and loses its rental value or income-producing powers.

What is true of the building is equally true—and even more important—of its protective equipment, if it is of sufficient size and importance to have a private fire-protecting system. Whether this equipment consist of chemical extinguishers, standpipe and hose or automatic sprinklers, the necessity for constant care and maintenance, eternal vigilance to assure maximum efficiency at moment of need, is ever-present and vital to the safety of the building and the welfare of its owner.

Lesson of the Past Winter

Business men and manufacturers throughout the country, and particularly in New York and Boston, owners and occupants of buildings of all classes, had ample proof of this fact in the experiences of the winter just closed, when the combination of fuel famine and long-continued cold—much of it zero weather or below—resulted in the freezing of hundreds of sprinkler equipments, with consequent impairment of fire protection and—at least in New York—the development of the most acute conflagration menace that the Metropolis has ever known.

If the history of this recent fire menace should ever be written, the part which automatic fire control devices played in conserving the industrial values of a nation engaged in the manufacture of war supplies will be better understood; and that history should be of absorbing interest to the building owner or occupant, especially in view of his own responsibility for his own safety—his individual share in effective conservation.

If automatic sprinklers are to function properly—to perform the duty for which they are designed, which is effective fire control—they must be properly installed, have adequate water supplies and be properly maintained. Given proper installation and adequate water supplies, satisfactory or unsatisfactory fire control depends on efficient maintenance or the lack of it.

Psychological Obstacle

The principal obstacle to effective sprinkler maintenance is the human element—the man or men responsible for the equipment—and the result—impaired efficiency—therefore may be diagnosed as the manifestation of a psychological ailment.

Winter impairment of automatic fire control, which was particularly in evidence during the winter just closed, through the widespread freezing of sprinkler equipments, was due in very large degree to this psychological influence—a wrong mental attitude, on the part of owners, toward the mechanical agency for their own protection. This attitude—largely the outcome of their regarding sprinklers merely as an agency for reduction of insurance cost—produced a condition of plant inefficiency or disorganization, which was responsible for depletion of coal stocks, with consequent danger of frozen equipments; shutting off the water, to prevent freezing, and other conditions conducive not only to

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spread of fire, but to its inception as well—in other words, inviting a conflagration.

This attitude, resulting in such impairment, is just another phase of the great American carelessness that is draining the country of its resources through the great American Fire Waste—making it of its prosperity; sapping the dynamic force of the nation behind the armies; making it difficult to win the war and otherwise paralyzing the energies of the American people and preventing adequate accomplishment in both peace and war.

Sprinklers Do Not Fail

Automatic sprinkler protection efficiency depends altogether on proper maintenance of equipment, which is assured only by intelligent human control, including constant and unremitting inspection and prompt and systematic repairs; and sometimes, instead of the human control, automatic electro-mechanical supervisory service. Given a properly installed equipment and adequate supply of water, maximum efficiency—satisfactory fire control—is virtually certain if maintenance is as it should be. Automatic sprinklers do not fail.

In commenting on the essentiality of maintenance, the National Fire Protection Association's committee on field practice, which is the highest authority in the land on questions of maintenance of private fire-fighting equipment, says:

"The mere fact that fire hazards may have been safeguarded and fire protection may have been installed originally in full accordance with standard requirements, is no guaranty that these conditions will remain. Proper upkeep is necessary—and frequent reinspection, test and improvements of appliances are required to insure operating efficiency at all times."

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Remarking the vital necessity of maintenance and a wrong attitude toward automatic sprinkler protection, which is responsible for considerable of the conditions impairing its efficiency, Joseph Kendall Freitag in his work on "Fire Prevention and Fire Protection," says:

"The value of fire-resisting equipment, whatever its nature, is dependent upon effective maintenance and proper working order. Efficient maintenance is particularly vital to the insurance companies who insure property containing such equipment, for the obvious reason that definite rates, probably involving allowances or deductions in premiums, are fixed on the assumption of the effective operation of such equipment. But the insured often seem interested principally in securing insurance rates as low as may be possible, thereafter leaving the equipment to care for itself, without adequate inspection or repair, and often without the supervision or charge of some one familiar with operation. The idea of looking at fire-resisting equipment in the nature of an investment—an investment against fire loss, interruption to business, or against increased insurance premiums—which will return good dividends in the economies and safeguards provided, does not seem to strike many owners in any light comparable to the investment of an equal amount of money in any branch of their active operations. And yet the neglect of such equipment may and often does mean quite as sure a financial loss as carelessness or oversight in regular business matters."

Looking for Financial Return

The editor of the *Quarterly*, of the National Fire Protection Association, in commenting on the 1917 annual summary of the record of fires in properties equipped with automatic sprinklers, says:

"The recklessness and indifference shown in many sprinklered plants indicate that the automatic sprinkler is still too widely regarded as a device for reducing merely the insurance premium of the individual rather than for reducing the fire waste of America"

Recently, the fire prevention committee of the New York Chapter of the American Institute of Architects appealed to metropolitan property-owners to give a proper accounting of their responsibility in maintaining automatic sprinkler equipments. A part of the letter follows:

"Unfortunate is a tendency of property-owners, once having installed sprinkler systems and other fire-fighting apparatus, to consider their duty done and leave everything else up to the Fire Department and the insurance companies This letter is an appeal to all such to realize that they alone are responsible and responsible all the time, to see that such apparatus is kept in condition for immediate and effective use to save their own property and indirectly that of their neighbors.

"We desire, therefore, as publicly as possible, to reiterate the fact and to urge the necessity of every precaution by every person that another disaster be not added to our present trouble."

Wrong Attitude Brings Danger

The wrong attitude toward automatic sprinkler protection is in too large a measure responsible for the impairment of this protection, especially in cold weather. The wrong attitude is due to too large a measure of interest in the investment feature of automatic sprinkler protection—the savings in insurance cost which pay for the equipment in a comparatively short period of time and afterwards actual interest on the investment, which virtually gives the protection something of a gold bond aspect. Of course, this is a practical and reasonable condition of mind, but it has

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the effect of impairing a proper appreciation of the protection value of the automatic sprinkler equipment, which after all is said and done, is the transcendent feature, for in itself this protection is an insurance which money cannot buy, namely, insurance against interruption to business, the loss from which in fires amounts to more in dollars than the value of property actually consumed.

The extent of the effect of this wrong attitude is disclosed by the statistics of so-called unsatisfactory sprinkler fires compiled by National Fire Protection Association, which show that 35 per cent. of the unsatisfactory cases are due to conditions which can be classified as defects in maintenance. This is not a decreasing quantity, for the record shows that during the year 1916-17, 57.9 per cent. of the cases of unsatisfactory control of fires were due to faults of maintenance, while the proportion for the 20-year period, 1897-1917, is 35.3 per cent.

The Money Value of Education

Every Youth Needs for the Future all the Education He Can Get and Every Dollar Spent on Increasing Education is a Sound Investment

By FREDERICK W. HAMILTON

(From the "Typothetae Bulletin")

The Committee on Education shares with every other educational agency the difficulty of making people see the money value of education. This obstructive mental attitude is not confined entirely to the working people and their children. It applies in a regrettable degree to the employing class. A man who has fought his way without education to a comfortable business position or perhaps to wealth is only too often disposed to consider himself a type of what every man can become and ought to become and to proclaim his conviction that the "school of hard knocks" is the best university and that the youth who goes to any kind of school any longer than the law compels is wasting time that might better be spent in the earning of money and experience in a factory or a shop. Unfortunately some persons who have won conspicuous financial success have lent to this delusion the great aid of names which are household words in America.

Some Exceptions to the Rule

That the uneducated sometimes attain great success from a material point of view and the educated sometimes fail is not to be questioned. But these occurrences no more prove the statement that education is a waste of time than the columns of "news" regarding crimes and scandals which fill our daily press prove that the unmentioned millions of our fellow citizens are criminals or evil livers.

It is also true that the boy from the grammar school will get the same pay in most occupations at 14 as the boy from the high school will get at 18. Very often the college or technical school graduate will go to work at 22 for nearly the same weekly pay. Naturally the boy with a boy's ambition to be doing things and earning his own money, finds it difficult to understand why he should continue in school at his parents' expense, earning nothing, without a penny he can claim as his own, when he can at any time get a job which will bring him the joy of achievement and an income which seems to his untrained mind affluence. Only too often the father and mother of a growing family fail to see any good reason why their slender income should not be eked

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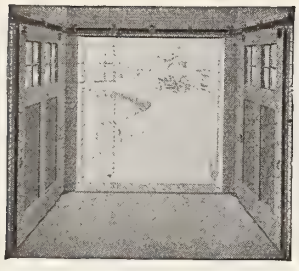


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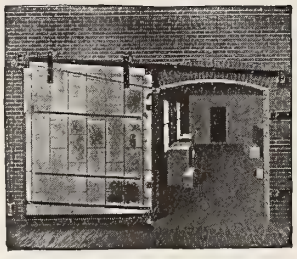
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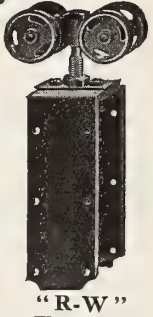
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out by the earnings of the children as they successively come to the age of 14.

The truth with regard to such questions as this is not to be learned from a few conspicuous examples, from the observations of any individual, or from the conditions of any single family. We need the experience and the information to be derived from a large study of general experiences and the actual histories of vast numbers of people. We need to know what money value has actually been found in education as the result of such study.

An Interesting Bulletin

Every reader of the *Bulletin* ought to procure and read "The Money Value of Education." This valuable study has just been published by the United States Bureau of Education and can be obtained by sending 15 cents to the Government Printing Offices, Washington, D.C. It is Bulletin No. 22 of 1917.

This bulletin shows conclusively the value of every kind of education to the state, to industry, and to the individual. Perhaps most of us are too old to profit directly by its teachings, but it is difficult to see how any man can rise from its perusal without a new vision of what education may mean to his children and what educated employees may mean in his business. The conclusion is inevitable that every youth needs for his future all the education he can get, that every dollar foregone for the purpose of increasing education is an investment yielding returns unknown in any other form of providing for the future, and that every business needs the best educated employees it can get, even if it has to pay for their education itself.

In 1909 Massachusetts gave her children 7 years' schooling, the United States generally gave 4.4 years, and Tennessee gave her children 3 years. These, of course, are averages.

In the same year Massachusetts citizens produced, per capita, $466, the United States as a whole $332, and Tennessee $174. No one would claim that education fully accounted for these figures, but the relations shown are striking.

How Successful Men Compare

"Who's Who in America" is a book made up by business men and intended to tell something about the Americans who have attained distinction in industry, commerce, and agriculture as well as in the professions. Its edition for 1900, containing about 8,000 names, has been carefully studied with the following results:

Education.	Population.	In the book
Uneducated	5,000,000	31
Common school	33,000,000	808
High school	2,000,000	1,245
College	1,000,000	5,768

Of course, one realizes that the college man has many advantages besides his education, but the figures are suggestive all the same. A similar study of the 1911 edition, with about twice as many names, gives similar results.

A study of 100 of the wealthiest men in the United States in 1908 showed that in proportion to the total number in America possessing a college education there were 277 times as many college-bred men who had amassed great wealth as there were of noncollege-bred men.

Statistics gathered from 100 business houses and covering a period of several years show that about 90 per cent. of the college graduates employed rose to high salaries and im-

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portant positions, while only 25 per cent. of the noncollege-bred men attained the same success.

The report of the Commission on Industrial and Technical Education made to the Massachusetts Legislature in 1906 shows eloquently the value of technical education even when continued only to 18 years of age:

Age	Average earnings of boys leaving school at 14	Average earnings of boys leaving school at 18
14	$200	$ 0
16	287	0
18	375	525
19	425	625
20	475	775
21	450	875
22	575	1075
23	600	1100
24	625	1250
25	650	1550

Many similar studies have been made, all yielding practically the same results.

All this suggests some very practical questions.

How much does the boy gain who goes to work at 14?

How much does the industry gain which employs him?

A Report on Welfare Work

What is Being Accomplished at the Plants of the McClary Mfg. Co. in London in the Direction of Mutual Co-operation

The March issue of that excellent little publication, *McClary's Wireless*, published by the McClary Mfg. Co., London, is devoted especially to Benefit and Welfare and contains articles on the work of the McClary Mfg. Co.'s Employees' Benefit Society and the Company's Welfare Department. Of the latter the following readable account is given, which may possibly offer suggestions to other welfare workers:—

While both are undoubtedly doing welfare work among our people, the Benefit Society and the Welfare Department of our factories are quite distinct and separate bodies. The Benefit Society is operated exclusively by our employees. The Welfare Department is the Company's connecting link between itself and its employees for the purpose of facilitating a better mutual understanding, and the co-operation which such an understanding must unfailingly work; for the ultimate purpose, as its name signifies, of promoting employees' welfare.

The organization of the Welfare Department is this: Lt.-Col. Gartshore, the Company's Vice-President, is its supreme head, who appoints the members of its general committee, from which are chosen the sub-committees in charge of various branches of the Department's work. As working head of the Department, and in touch with the activities of all the committees, is the Welfare Supervisor, Miss Frances Rankin.

While in its work our industry is divided into two great plants, the Foundry, one, and the Wares Factories, another, in the well-being of its people and the efforts made to maintain and add to that well-being and to spread abroad the sincere spirit of friendliness that is characteristic of the Company's management, it is one. There is no such thing as Foundry Welfare or Factories Welfare. There is Welfare, one, indivisible and earnest.

The Department has its foundation in what is known as the firm's welfare—that is, the original investment of space, equipment and time put into the work of the Company. This covers the three dining-rooms and their furniture, the cafes and their equipment, the two emergency hospitals and their supplies, the professional services of a trained nurse as supervisor, and all the clerical work necessitated. An annual deficit

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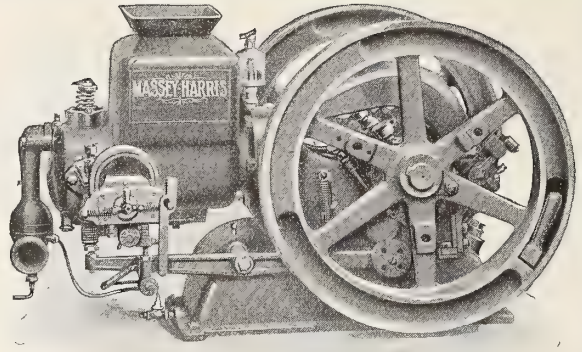
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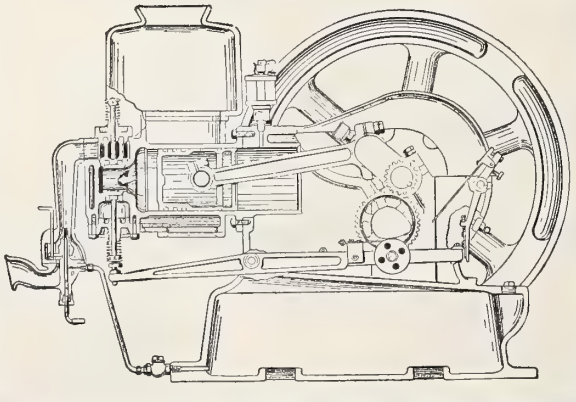
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on account of wages in the cafes is also absorbed by the Company.

Next is the Welfare Association, a body composed of individuals appointed to it by the President, whose duty it is to make suggestions and further by every other means they find possible the spirit and deed of welfare throughout the institution.

From among the members of this Association are chosen the committees—Dining-Room Committee and its sub-committees on Amusements; Purchasing Committee; Advertising Committee; and Garden Committee.

Dining-Room Committee

The scope of the Dining-Room Committees, convened by Mr. John Walton at the Foundry, and Mr. F. Westbury, Factories, is tolerably outlined by their name, perhaps—suggestions and improvements relative to the noon-hour service and recreations. A piano and games are provided in each dining-room, and effect a very beneficial relaxation between the strain of morning and afternoon work hours. Allied to these are the Amusement Committees, through whose endeavors are provided talent for a first-class concert one day of each week. The chairmen of these two latter committees are Mr. Tapp, Foundry, and Mr. Moll, Factories.

In addition to the weekly concert provided by them, we are indebted to the Y.M.C.A. for a very enjoyable noon-hour address and music one day of each week, at each plant, during the winter season.

Social events and entertainments other than those of the noon-hour have largely been discontinued for the duration of the war.

Mr. Foot is chairman of the Purchasing Committee, a part of the Welfare which buys certain lines of provisions in large quantities and re-sells to our employees only, at something of an advantage to the latter. This is, of course, done under arrangement with the retailers of the city.

The Advertising Committee, under Mr. D. G. Clark, has charge of the sale of advertising space on the dining-room walls and on programmes, etc. This is a source of very acceptable supplementary income to the Welfare Association, and an equally good investment to the users of such space.

Gardening Committee

The Gardening Committee, chairman of which is Mr. J. K. H. Pope, is one that came into being only last year, with the call for increased production of foodstuffs, and proved itself a splendid success. Under its management, a considerable tract of otherwise idle land was secured, ploughed up by the Company's teams, and given out by lot to the applicants for garden plots. Seeds, implements and insecticides were bought by the Committee in bulk and disposed of to the gardeners at cost. Speakers were secured who gave lectures on various phases of gardening which would prove most helpful to those who were amateurs at the work. Also a competition was held, several inspections of the gardens entered being made during the season and prizes and credits awarded at the close. This Committee, doing its so-excellent work at this particular time, and doing it so well, is deserving of particular commendation, as well as the whole-hearted assistance of an even greater number of enthusiasts in the work it is planning for this coming season.

Another very much appreciated feature of the Welfare Department is the Savings Department, operated without any special committee, through the timekeeper's, the paymaster's and cashier's departments. It constitutes what is perhaps the most painless method of saving known. The employee merely expresses to the timekeeper the weekly amount he wishes to



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deposit out of his wages; through the other departments, this sum is deducted from his pay, shown on the pay-envelope statement, placed to his credit on the Company's books at 5% per annum interest, and repaid to him, unless he chooses (as many do) to leave it on deposit from one year to another, early in the last month of the year. Sums as small as 25 cents weekly are accepted. Last year, our employees saved in this way something over forty thousand dollars, and so far this year, have an aggregate saving to their credit of approximately one thousand dollars a week, in some three hundred and fifty individual accounts. This year, however, the new arrangement has been made that instead of being repayable to depositors only at the end of the year, these funds are available to them for investment in Victory Bonds and War Saving Certificates.

Other Valuable Features

Each plant, under Welfare, has quite a comprehensive lending library, and each a well-equipped cafe, from which mid-day meals and lunches are served at practically cost. Each has an Emergency Hospital, the complete appointments and stock of remedies of which make it possible to treat accident patients, and those suffering illness during business hours, to their very best interests. Last year Miss Rankin gave 1,322 consultations and made 713 dressings, besides the 1,206 outside visits made to homes where there was need of her professional advice.

In this connection, Miss Rankin wishes it known always that the Welfare Department has certain supplies such as extra linen, hot water bottles, crutches, an invalid chair, etc., kept for the purpose of being loaned to those needing them. There are many such needs, urgent, short-lived and expensive needs, which sickness introduces into the average home at a time when it can least afford them; and many of these, Welfare is prepared to take care of.

There are also many cases during the year where the Welfare gives assistance outright, if needed—gifts of clothing, or foods, or fuel.

But behind all these, and bigger than all, is the thing that cannot be so easily expressed—the spirit, the loyalty of employer and employee, each to the other, which is the achievement of real welfare.

Another Industry May Start

Manufacture of Safety Lamp Glasses Possible—Bureau of Standards Necessary

Previous to the war, the miner's safety lamp glasses used in Canada were imported from Germany and Austria. They are made from a special kind of glass having a high resistance against breakage from a blow, or sudden change of temperature. The material used in safety lamps must necessarily be of a high quality as a defective lamp may be the means of causing a mine explosion. The United States was also dependent on enemy countries for supplies of safety lamps and lamp parts, but, through the co-operation of the Bureau of Standards and the Bureau of Mines, these are now being manufactured in that country.

The price of safety lamp glasses has increased from $6.50 per 100, before the war, to nearly $10 f.o.b. New York. The demand for them in Canada is increasing year by year, and the present requirements are in the neighborhood of 50,000 glasses per annum. There are a number of glass manufacturers in Canada and the production of these glasses would not only prove to be an additional source of profit to the manufacturer, but would also make Canada independent of foreign sources of supply.

Safety lamp glasses and many other imported products now used in Canada may, or may not, have been standardized in Germany, the United States and elsewhere. If it is intended to manufacture these products in Canada, it will be necessary, however, to provide some means for guaranteeing their standard of purity. The importance of this subject, and the increasing purchases made by the different departments of the Government, demonstrate the value of a Canadian National Bureau of Standards, similar to that in the United States.—*W.J.D.*

The Marking of Express Packages

Rules Issued for the Guidance of Shippers by the Express Traffic Association of Canada

The following circular has been issued by C. N. Ham, secretary of the Express Traffic Association, of Canada, to the patrons of the various express companies embraced in the membership of that organization.

We beg leave to direct the attention of shippers to the large number of articles that are delayed, or undelivered, owing to the address becoming detached or obliterated. This undoubtedly results in disappointed customers and dissatisfaction to all concerned, which we believe would be obviated if special attention were given by the shippers to the preparation of shipments forwarded by express. To that end we commend to your notice the following suggestions in regard to the packing and marking of such shipments.

Because they easily become detached, *tags should not be used* for addressing shipments packed in boxes, crates, barrels, corrugated strawboard or fibreboard containers. Such shipments should be marked and addressed with brush, stencil, crayon or pasted label.

Castings, Machine Parts, Shafting, Pipe, Rods, Bars and Other Metal Articles

(*a*) When boxed, crated or trussed, the name and address of the consignee should be marked on the box, crate or board by brush, stencil or crayon. Tags should not be used on such shipments.

(*b*) When not boxed, crated or trussed, and there is sufficient smooth surface for the purpose, the address should be plainly marked with white paint. When not possible to mark with paint, such shipments should be addressed with good linen or strong manilla tags, which should be wired to unexposed parts of the articles wherever possible, in order that they may not become detached in handling. In addition, a concealed tag bearing the same address should be bound to the article with burlap covering, the latter securely wired at each end.

(*c*) Sacks of metal articles must not exceed fifty pounds in weight. In addition to the outside address tag, an additional tag, bearing the name and address of the consignee, should be enclosed in the sack.

(*d*) Rods or bars of iron shipped in bundles should be wrapped in burlap or securely fastened in three places with wire of not less than fifteen gauge. In addition to the outside address tag, a concealed tag bearing the same address should be bound to the article with burlap covering, the latter securely wired at each end.

(*e*) *High Speed or Carbon Steel*—Since the advent of the war, high speed steel has been in great demand, and large quantities have been shipped by express for the purpose of dispatch. However, by reason of the address tags becoming detached, much confusion and delayed deliveries have resulted. It would facilitate deliveries were such shipments boxed or crated, but where not possible to box or crate the steel, then it should have the address distinctly marked with paint. When not boxed or crated and not possible to mark with

STEEL BARS

ROUNDS, SQUARES, FLATS, ANGLES AND SPECIAL SECTIONS FOR AGRICULTURAL IMPLEMENTS

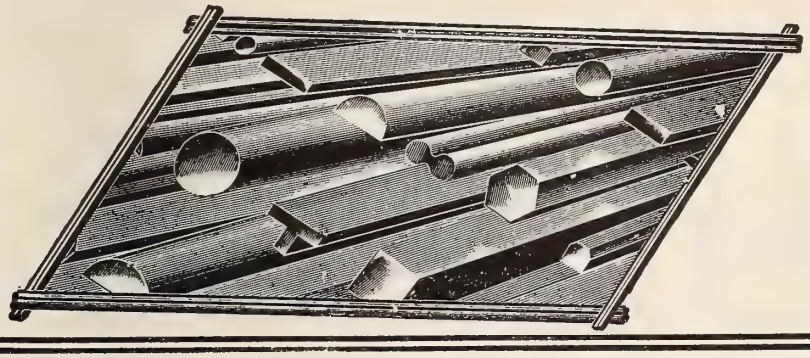
Prompt Shipment from Stock

BURLINGTON STEEL CO., Ltd.

HAMILTON - CANADA

UNION DRAWN STEEL CO., Limited

HAMILTON, ONTARIO



MANUFACTURERS OF

Shafting

Rounds, Flats, Squares and Hexagons

LARGEST STOCK IN CANADA

Get prices before ordering elsewhere.

CANADIAN TUBE & IRON CO., LIMITED

MONTREAL, CANADA

Ask Your Jobber for

WROUGHT PIPE

BLACK AND GALVANIZED
1/8 TO 4 INCH

Thoroughly inspected and tested to 600 lbs. pressure and branded.

CT Brand

Also BOLTS, NUTS, RIVETS—All Kinds

SELLING AGENTS:

Canadian Rolling Mills Co., Limited

BAR IRON AND STEEL

Colonial Wire Mfg. Co., Limited

WIRES, WIRE NAILS, WOOD SCREWS, ETC.

WORKS: LACHINE CANAL MONTREAL, CANADA

Shurly & Derrett, Limited
TORONTO

TRADE MARK.

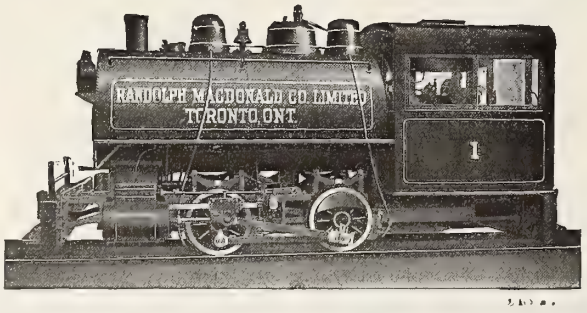
Manufacturers of

TWINES

COTTON AND JUTE ROPE

MILL & SPINDLE BANDING, etc., etc.

INDUSTRIAL LOCOMOTIVES



Locomotives on trunk line railroads have the advantage of the best facilities for inspection and repairs.

Industrial locomotives face different conditions. They must work day after day in the hardest service, and often in localities where repairs cannot be made without great inconvenience. That is why we build our industrial locomotives from interchangeable stock parts. With this system every part must fit every other locomotive of the same size and design, and long delays waiting for duplicate parts is avoided. Interchangeable parts kept on hand at our Works for prompt shipment.

MONTREAL LOCOMOTIVE WORKS, LTD.
DOMINION EXPRESS BUILDING, MONTREAL, CAN.

paint, then such shipments should be addressed with at least two good linen or strong manilla tags, which should be wired on. An additional tag bearing the address should be bound to the steel with burlap covering, the latter securely wired at each end.

Maritime Province Union

Twenty-one Arguments in its Favor Are Presented by H. J. Logan of Amherst, N.S.

A strong argument in favor of the union of the Maritime Provinces was made by Mr. H. J. Logan, of Amherst, before members of the Commercial Club of Halifax, recently.

"Our chief thoughts and energies these days should be devoted to the war," said Mr. Logan. "At the same time, I submit we should be making 'after the war' preparations. We, in the Maritime Provinces, collectively are strong. Nature has richly endowed us. Let us, if possible, not have our efforts divided. The times demand combination of energies. The immediate future requires co-operation and not competition, and above all we should avoid waste of money and effort. The idea of Legislative union of these provinces is an old one." Mr. Logan then quoted from a speech of the late Sir Charles Tupper on the subject. Continuing, he presented the following arguments in favor of the union:

1. Our interests as Provinces by the sea are almost identical.

2. Our union would be our strength against the rapidly growing influence of the West, whose interest and desires are often not in common with ours.

3. In Union there would be increased strength in the Federal Government.

4. It would give us a common immigration policy.

5. It would give us legislative union with a common policy for the three provinces.

6. It would develop bigger men in the Legislature where a larger province would make bigger issues.

7. It would give us uniformity in statute law.

8. It would broaden the fields of our courts.

9. It would give us a stronger court of appeal and uniformity of legal decisions.

10. It would provide a common educational system, with a Minister of Education, uniformity of text-books and teachers' examinations and qualifications.

11. It would give us a common road policy.

12. It would reduce the expenses of the Government and legislation.

13. It would give us the opportunity of readjustment of subsidies from Ottawa.

14. It would put us in a position to make a united stand upon matters peculiar to maritime countries, particularly shipbuilding.

15. It would broaden the view of our people and tend them to remove interprovincial squabbles and jealousies.

16. It would make us acquainted with each other.

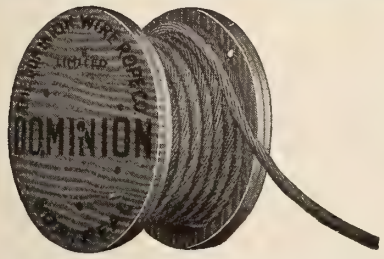
17. It would mean higher credit in money markets and very much less expense in connection with borrowing.

18. It would give us an opportunity of collective advertising of the resources and opportunities of the three provinces.

19. By united effort we could secure a greater amount of tourist travel.

20. The three provinces are deeply interested in fishing, and it would make it one of our finest industries.

21. And last, but not least, it would mean a "getting together" as citizens of a greater Eastern Province, proud of our Maritime domain but loyal to Canada, "the twentieth century land."



CANADIAN WIRE ROPE

MANUFACTURED BY

The DOMINION WIRE ROPE COMPANY, Limited

Branch: Mail Bldg., TORONTO. Head Office: MONTREAL.

Are You Satisfied?

Does the babbitt metal you've been using always come up to expectations? If not, try

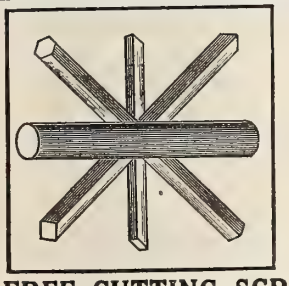
DOMEKO BABBITT



The formula for this metal is the result of an endeavor to produce perfection in Babbitt. We've never known it to fail—even on places where other babbitts could never be depended on. A trial order is solicited with the confidence that in Domeko we have a Babbitt that you will want to use exclusively.

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SHERBROOKE . . QUEBEC

FOSS & HILL MACHINERY COMPANY, 305 St. James Street, Montreal, Quebec
SELLING AGENTS FOR MONTREAL



COLD DRAWN, TURNED AND POLISHED STEEL

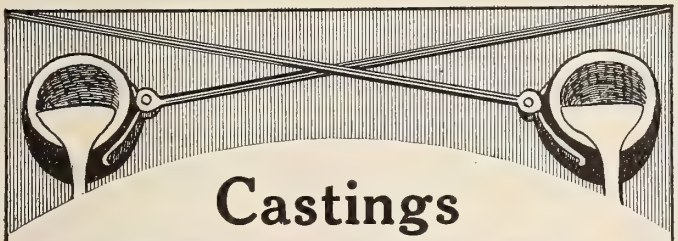
SHAFTING

ROUNDS, SQUARES, HEXAGONS AND FLATS

$\frac{1}{8}$ in. to 6 in. Dia. $\frac{1}{4}$ in. to $2\frac{1}{4}$ in. $\frac{1}{4}$ in. to $2\frac{1}{4}$ in. up to $1\frac{1}{2}$ in. x 3 in.

FREE CUTTING SCREW STOCK PISTON AND PUMP RODS FINISHED KEYS

The CANADIAN DRAWN STEEL CO., Limited
HAMILTON, ONTARIO



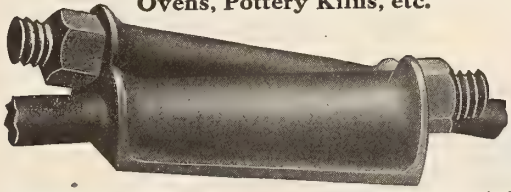
Castings

Brass, Gunmetal, Manganese Bronze, Delta Metal, Nickel Alloys, Aluminum, etc.
MARINE AND LOCOMOTIVE ENGINE BEARINGS.
MACHINE WORK AND ELECTRO PLATING.
METAL PATTERN MAKING.

United Brass & Lead, Ltd., Toronto, Ont.

LUGS FOR BANDS

On Silos, Tanks, Water Pipes, Penstocks
Ovens, Pottery Kilns, etc.



Ask for Price List

For round Rods $\frac{5}{8}$ to $1\frac{1}{2}$ inch Flat Bands 2 to 6 inches wide

Best Malleable Iron—Prompt Shipments.

OTTERVILLE MFG. CO., LIMITED
OTTERVILLE, ONT.

Among the Industries

Under this heading are published items of news of current interest concerning the activities of Canadian manufactures. Information about changes of interest, enlargement of plants, and plans for future developments are always welcome, and are published free of charge, provided they should not be properly classified as advertisements

*Items prefixed with an asterisk are based on official information received in each case from the companies mentioned. Other items, while secured usually from reliable sources, have not the same authoritative origin.

ALBERTA

Medicine Hat

The Carlyle Creamery Co., 233 Fifth St. S.E., contemplate the erection of extensions to dairy.

BRITISH COLUMBIA

Nelson

A company has recently been formed for the purpose of building a cordage factory in British Columbia, and it may be located at Nelson. About $250,000, it is said, is to be spent on the plant.

New Westminster

A syndicate of New York capitalists have completed arrangements for the establishment of a moderate-sized steel industry in British Columbia. The new plant will be constructed on a tract of Indian reserve land on the North arm of the Fraser River, near New Westminster. The site has been leased for a period of twenty-one years to the company by the Federal Government. As a condition of the lease and other concessions made by the Government, work on the plant will have to commence within sixty days. The products will chiefly be steel billets, rods and plates. Though the venture is not a large one,—the expected output being but one hundred tons a day,—the Government has welcomed and encouraged it, because every additional ton of steel that can now be produced is an asset of real value to the country.

Vancouver

The British-American Shipbuilding Company propose to establish a shipbuilding plant at Vancouver and have reached an agreement with the Harbor Board in regard to a site on the Kitsilano Indian Reserve.

The situation in regard to evaporators has not yet cleared. The big plant of the Dominion Products, Limited, at New Westminster, is awaiting business, and the manager of the company is in the East endeavoring to line up additional war orders. The Graham evaporator at Marpole is closed down tight. One of the evaporators in the Okanagan is engaged on an order for the Government, in order to save some of the supplies there going to waste, and the new plant at Sardis is also engaged in the manufacture of dehydrated products.



The Canadian Salt Without a Fault

If you wish to impress on a customer the fact that some one article in your store is pure, you can't make a stronger comparison than to say, "It is as pure as Windsor Salt."

Windsor Salt has probably been used in her home for years.

Windsor Table Salt
Made in Canada
THE CANADIAN SALT CO. LIMITED

Old Tyme Pure Maple Syrup
AND
Maple Butter
SOLD EVERYWHERE

Maples Limited
Manufacturers and Refiners
TORONTO CANADA

Penmans

Underwear, Hosiery and Sweaters
Laundry, Pulp and Papermakers' Felts, Blankets
Lumbermen's Socks, etc.

Factories at

PARIS, THOROLD, PORT DOVER, ALMONTE AND BRANTFORD, ONTARIO
ST. HYACINTHE AND COATICOOK, QUEBEC

Penmans LIMITED

PARIS : : : CANADA

DOON TWINES

LIMITED
KITCHENER, ONT.

Manufacturing a Full Line of

Flax, Hemp and Jute Twines

We Specialize in

Mattress, Tufting, Broom, Sewing, Stitching, Warehouse and Bundling Twines; also Ropes, Plow Lines and Clothes Lines

Having the raw material on hand to spin the above we can guarantee delivery.

Write for Samples and Prices

MILLS: DOON and KITCHENER

THE
MONTREAL COTTONS
LIMITED

MANUFACTURERS OF

WHITE VICTORIA LAWNS

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OF EVERY DESCRIPTION

Hear Us For Our Cause!



We want to equip your plant with

ESTY FIRE SPRINKLERS

and show you how to reduce insurance costs 50% to 80%.

IT'S A GREAT BIG MONEY SAVER

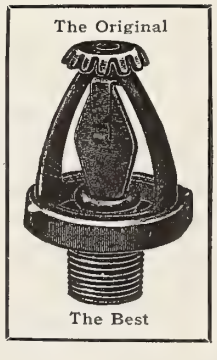
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H. G. VOGEL CO. (CANADA) LIMITED

169 Duke St. - MONTREAL, P.Q.

PURDY, MANSELL LIMITED
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AUTOMATIC FIRE SPRINKLER SYSTEMS INSTALLED



CONTRACTORS FOR

Plumbing, Heating and Power Equipment. Importers and dealers in Steamfitters', Engineers' and Plumbers' goods.

WRITE FOR ESTIMATES

Correspondence Solicited

NEW BRUNSWICK

St. John, N.B.

The George E. Holder sail factory is making suits of sails for an iron barque at Liverpool, N.S., for the new schooner in the Saker yard, Strait Shore; for the two schooners in the White yard at Alma, and for five schooners under construction by the Eureka Shipbuilding Company of Grand Manan.

The Canada Brush Company have asked the City Council to lease an adjoining lot for purposes of expansion. This company is doing a nice little business, paying out about $700 per week in wages.

The Maritime Art Glass Works located in City Road, St. John, may remove to Halifax, according to a statement in the St. John *Telegraph*. The company has been in operation in St. John for nearly fifteen years. It was hard hit by the war, seventy-five per cent. of its skilled help enlisting. It also lost a large shipment of glass when the Germans captured Antwerp, and it has been increasingly difficult to get raw materials. The curtailing of building operations has also had a prejudicial effect. Now that the art glass market in Halifax is active, a better field is likely there.

NOVA SCOTIA

Bridgewater

The Davison Lumber Co., La Have St., contemplate the erection of a sulphite plant, planing mill and box factory. Acting manager, A. F. Pamenter.

Halifax

The Hillis E. Sons, Limited, foundry, which was wiped out in the explosion of last December, is to be rebuilt on a site on the Kempt Road, directly north of the Brandram-Henderson plant. A contract has been awarded for a temporary foundry building, machine shop, etc., an office and storage building having already been erected. These buildings will be equipped with up-to-date appliances and the latest labor and time-saving devices. The contract provides that the buildings are to be completed by May 1st, when the company will at once begin the manufacture of Richmond ranges, and expect to be turning out all the foundry products for which they have long been so well known. The patterns are now being prepared for the Richmond ranges and it is expected these will be on the market for the spring trade.

Sydney

Work on the largest rail order to have been obtained by the Dominion Iron & Steel Co. will commence shortly. Before rails can again be manufactured it will be necessary for certain alterations to be made in several of the mills. When the plant discontinued making rails, machinery which will not now be required was installed and it will be necessary to remove this and replace it with the old machinery. The contract calls for 100,000 tons of steel rails. Besides being the largest contract to have been received by the Steel Company, it will be one which will establish a record for speed. In four months it is expected that all of the rails will be on the cars ready for shipment. The largest order previously received was one for 65,000 tons. The first unit in the new order will be of about 10,000 tons, but the units will be increased each month.

Construction of a plant for the rolling of steel plates, the output of which will be sufficient to meet the demands of the shipyards of the Dominion for some years to come, will be begun at Sydney, C.B., almost immediately, as a result of an arrangement completed between Hon. C. C. Ballantyne, Minister of Marine and Fisheries, and the Dominion Iron and Steel Corporation. The arrangement is the direct outcome of the decision of the Minister of Marine and Fisheries, shortly after his accession to office, that Canada should engage in the construc-



FIRE!

What about your buildings? Are they protected against this most dreaded of all destroyers?

A system of

MANUFACTURERS' AUTOMATIC SPRINKLERS

means

PROTECTION AND SECURITY

Systems pay for themselves in a few years.

Write us for particulars.

THE BENNETT & WRIGHT CO., LIMITED

72 QUEEN ST. EAST - TORONTO, CANADA

Wood Tanks and Vats

All sizes and styles.

Made from selected Tank Stock.

Towers and Tanks for sprinkler and water supply, etc.



Goold, Shapley & Muir Co., Ltd.

BRANTFORD - ONTARIO

WINNIPEG REGINA CALGARY



SPRINKLER TANKS and TOWERS

also wood and steel tanks for Municipal, Railway and Suburban water supply.

All our tanks and towers are built to pass inspection of any Board of Fire Underwriters.

Send for special tank and tower catalogue.

GALVANIZING HOT AND ELECTRIC

We do all kinds of hot and electro galvanizing for the trade. Our plant is one of the largest in Canada and our charges reasonable.

Write us for quotations on your galvanizing work.

Ontario Wind Engine & Pump Co., Limited

TORONTO MONTREAL WINNIPEG CALGARY



CANADIAN CHICAGO BRIDGE AND IRON COMPANY

Limited

Bridgeburg, Ontario

ELEVATED STEEL TANKS

For Municipal, Railroad and Factory Service

Storage Tanks, Self-Supporting Steel Stacks and All Classes of Heavy Plate Metal Work

Write our nearest sales office to-day for prices, plans and specifications. Our catalogue No. 25 gladly mailed to you, upon request.

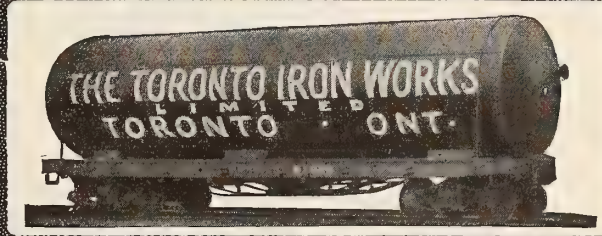
OFFICES:

Bridgeburg, Ont., Can., 121 Janet St.
Chicago, Ill., 1315 West 105th Street
New York, 3132 Hudson Terminal Bldg.

SHOPS:

Bridgeburg, Ontario
Greenville, Pa (Pittsburg District)
Chicago, Illinois

RIVETED STEEL TANKS FOR EVERY PURPOSE

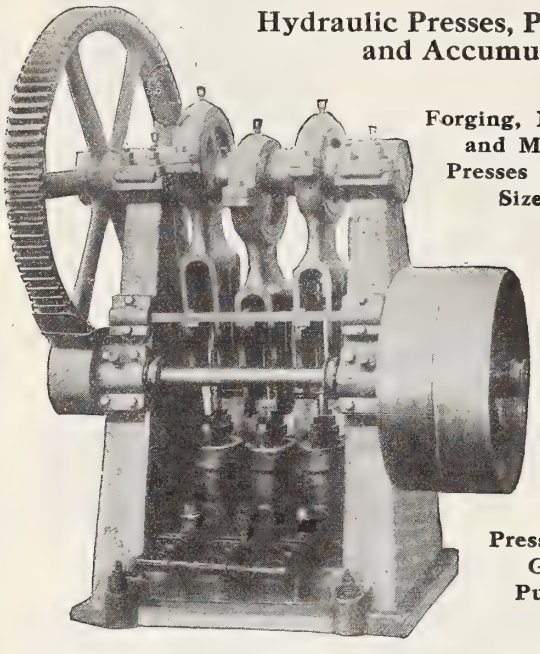


OIL STORAGE - GASOLINE TANKS - AIR RECEIVERS
PNEUMATIC WATER SUPPLY TANKS - SMOKE STACKS
BOILER BREECHING - RIVETED STEEL PIPE BINS & HOPPERS

PRESSES

Made in Canada

Hydraulic Presses, Pumps and Accumulators



Forging, Nosing and Marking Presses for all Size Shells

Presses for General Purposes

WILLIAM R. PERRIN, Limited
Toronto, Canada

Premier
MORE MILES PER GALLON
Gasoline

Experienced motorists know the value of getting, not merely good fuel, but the same fuel every time the tank is filled.

Premier Motor Gasoline is a homogeneous, uniform refinery product —the same wherever you buy it.

Polarine Motor Oil—the lubricant that never thickens from cold.

THE IMPERIAL OIL COMPANY
Limited
BRANCHES IN ALL CITIES

tion of steel vessels to help to meet the shortage of shipping in the Atlantic trade. Mr. Ballantyne announced three months ago that the Dominion Government would utilize the shipbuilding facilities of the country to provide ships for the Atlantic service. He also intimated that to provide the plates and angles required for the construction of those vessels he would eventually probably take steps to bring about the establishment of a plate mill in Canada.

Yarmouth

A shipbuilding plant is to be established by the Milton Shipbuilding Co., of which Armand Deveau will be the master builder. The yard adjoins the property of the Cosmos Cotton Company.

The second auxiliary craft built by the Yarmouth Shipbuilding Co. for the Yarmouth Fish Co. was launched last month.

ONTARIO

Brockville

An addition is being made to the factory of the Canada Carriage Co., Park Street.

Hamilton

A $20,000 addition is being made to the factory of Wagstaffs, Limited, Gage Avenue.

Hickson

The Canadian Milk Products, Limited, head office, 10 William Street, Toronto, are erecting an extension to their plant at this point.

Leamington

Tenders will be called about May 1 for the erection of a $60,000, two-story, reinforced concrete tobacco factory for the Imperial Tobacco Company of Canada, Limited, 900 St. Antoine Street, Montreal.

Plans are being prepared and tenders will be called about April 15, for the erection of a $35,000, one-story, cement block and brick tobacco factory for the Rock City Tobacco Co., 224 Dorchester Street, Quebec.

Listowel

The Perfect Knit Mills, Limited, Wallace Street, are having plans prepared for a $7,000 reinforced concrete dye factory.

London

A $5,000 dry kiln and a $3,000 boiler house are being added to the plant of the London & Petrolea Barrel Co., Simcoe Street, East.

Ottawa

The Colonial Hide Company, Hurdman's Road, contemplate the erection of a tannery.

Thedford

Plans are being prepared for the erection of a $10,000 flax factory for the Ontario Flax Co., Parkhill.

Thorndale

Plans are in progress for a $5,000 reinforced concrete and brick cheese factory for the West Nissouri Cheese Co., Thorndale.

Toronto

The Canadian Allis-Chalmers Co., Limited, Lansdowne and Royce Avenues, will erect a $6,000 steel and galvanized iron addition to smith shop.

Fire completely destroyed one of the buildings of the Jefferson Glass Co., on March 31. Loss $30,000.

CANADIAN PACIFIC

THE FINEST HUNTING GROUNDS IN AMERICA

ARE CONVENIENTLY REACHED

Via

Canadian Pacific Railway

MOOSE--BEAR--CARIBOU

RED DEER AND SMALL GAME

ARE QUITE PLENTIFUL

PARTICULARS FROM CANADIAN PACIFIC TICKET AGENTS
OR W. B. HOWARD, DISTRICT PASSENGER AGENT, TORONTO

Canada-South Africa Direct Service

Regular monthly sailings from Montreal in Summer and St. John, N.B., in Winter, calling at Cape Town, Algoa Bay (Port Elizabeth), East London, Port Natal (Durban) and Delagoa Bay in the order named.

Sailings 20th of each month.

All steamers fitted with refrigerators for the carriage of perishable freight.

For rates of freight and other information apply to

ELDER DEMPSTER & CO., Limited

133 BOARD OF TRADE BUILDING - - MONTREAL

Toronto Agent: S. J. SHARP, 79 Yonge St., Royal Bank Bldg

Welland

Plans are in preparation for remodelling the foundry of the Welland Iron & Brass Co.

QUEBEC

Montreal

The Canada Casing Co., Limited, 750 St. Paul St. West, have let the contract for a new factory.

Outremont

The contract will be awarded shortly for the erection of a factory for the Canada Metal Co., Limited, 50 Brennan St.

Rawdon

The Miner Lumber Co., Limited, have lost their lumber mills at this point by fire. Loss $50,000.

Three Rivers

Tenders will be called shortly for repairs to the factory of C. W. Lindsay, Limited, 512 St. Catherine Street West, Montreal.

RATE INCREASE ALLOWED

London and Port Stanley Railway Company's Application Granted by the Board of Railway Commissioners

The Board of Railway Commissioners for Canada have issued an order granting the London & Port Stanley Railway Co. authority to increase its standard freight mileage tariff by fifteen per cent., and its standard passenger tariff basis from 2½ cents to 2⅞ cents per mile. It has also been authorized to increase its rates on bituminous and cannel coal by 15 cents a ton. These increases become effective, April 15, 1918.

THE

New Zealand Shipping Company, Limited

CANADA

TO

Australia and New Zealand

Regular monthly sailings from Montreal in summer and St. John in winter, calling at Auckland, Wellington, Lyttelton and Dunedin (New Zealand) and Melbourne and Sydney (Australia). Sailings 20th of each month.

Through bills of lading issued to all points in Australia, New Zealand, Tasmania and other islands of Oceania.

Marine Insurance effected at rates equal to those given from New York.

For rates and other information apply to

The New Zealand Shipping Co.

LIMITED

213 Board of Trade Building, Montreal

THOS. MEADOWS & CO.

FOREIGN
FREIGHT CONTRACTORS
FREIGHT BROKERS
SHIPPING AGENTS

Shipments Handled to All Parts of the World

Ask our rates.
A trial shipment will demonstrate the facilities we possess for giving COMPLETE SATISFACTION.

LONDON MANCHESTER
LIVERPOOL SOUTHAMPTON
GLASGOW PARIS
NEW YORK
MONTREAL TORONTO

Ship it Canadian Northern all the way

MR. MANUFACTURER

Are you sure you have exhausted the possibilities to your business, of consistent expansion in production and purchasing power in the vast territories served by the lines of the Canadian Northern Railway System?

This year the reports show that an acreage larger than usual will be prepared for seeding along its lines. Dairying is growing by leaps and bounds. The raising and marketing of live stock shows constant growth. Under these conditions there ought to be the best of prospective customers. Have you covered the field?

The Canadian Northern Railway System is a national distributing agency. Its transcontinental line has been built to a high standard of excellence in point of grades and curvature. Goods "get there" in condition that does *your* work credit.



TEST CANADIAN NORTHERN RAILWAY SERVICE

Principal Agencies: Halifax, N.S.; Quebec, Que.; Montreal, Que.; Ottawa, Ont.; Toronto, Ont.; Port Arthur, Ont.; Winnipeg, Man.; Regina, Sask.; Saskatoon, Sask.; Prince Albert, Sask.; Edmonton, Alta.; Calgary, Alta.; Kamloops, B.C.; New Westminster, B.C.; Vancouver, B.C.; Victoria, B.C.

TRADES AND LABOUR BRANCH

NOTICE

The following are the Factory Inspectors for the Province of Ontario:

JAMES T. BURKE, Chief Inspector, Toronto
W. T. E. BRENNAGH, Port Arthur.
H. A. CLARK, Toronto.
MISS M. CARLYLE, Toronto
W. S. FORSTER, Ottawa
A. W. HOLMES, Toronto
ROBT. HUNGERFORD, Toronto
FRED KELLOND, Hamilton
S. J. MALLION, Stratford
MRS. A. BROWN-REDDICK, Toronto
H. J. TUTT, Toronto

Persons having business with any of the Inspectors should communicate with them at the Parliament Bldgs., Toronto.

W. A. RIDDELL, M.A., Ph.D., Superintendent. **Phone Main 5800**

HON. F. G. MACDIARMID, Minister of Public Works and Highways.

TRADES AND LABOUR BRANCH

NOTICE

To Manufacturers, Dealers, and Users of Steam Boilers

All steam boilers built in, or entering the Province of Ontario, and boilers exchanged or repaired, are subject to Government Inspection as prescribed in the Steam Boilers Act, 3 George V., C. 61.

Before any work of repair or alteration is commenced on any boiler, notice must be sent to the Department stating the nature and extent of the repairs or alterations proposed to be made. If the Chief Inspector should consider such repairs or alterations of an extensive character, the boiler must be inspected in accordance with the Regulations by an Inspector authorized under the Act.

All communications should be addressed to the Steam Boiler Branch, Department of Public Works, Parliament Bldgs., Toronto.

HON. F. G. MACDIARMID, Minister of Public Works. **D. M. MEDCALF,** Chief Inspector of Steam Boilers.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

TRADES AND LABOUR BRANCH

NOTICE

TO STATIONARY AND HOISTING ENGINEERS

Everyone operating a STATIONARY steam plant of 50 h.p. or over in the Province of Ontario must hold a Stationary Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Everyone operating a HOISTING steam plant working at a pressure of 20 pounds or over irrespective of horse power, and used for hoisting in structural operations or excavating purposes, in the Province of Ontario, must hold a Hoisting Engineer's Certificate from the Board of Stationary and Hoisting Engineers. Anyone operating such a plant without a Certificate is liable to the penalties set forth in the Stationary and Hoisting Engineers' Act.

Application forms for obtaining STATIONARY or HOISTING Engineers' Certificates, may be had upon applying to the Chairman.

HON. F. G. MACDIARMID, Minister of Public Works and Highways. **W. C. McGHIE,** Chairman of Board.

W. A. RIDDELL, M.A., Ph.D., Superintendent.

Established 1849 BRADSTREET'S

Capital and Surplus - - $1,500,000

Offices Throughout the Civilized World

Executive Offices: Nos. 346 and 348 BROADWAY, N.Y. CITY, U.S.A.

THE BRADSTREET COMPANY gathers information that reflects the financial condition and the controlling circumstances of every seeker of mercantile credit. Its business may be defined as of the merchants, by the merchants, for the merchants. In procuring, verifying, and promulgating information, no effort is spared, and no reasonable expense considered too great, that the results may justify its claim as an authority on all matters affecting commercial affairs and mercantile credit. Its offices and connections have been steadily extended, and it furnishes information concerning mercantile persons throughout the civilized world.

Subscriptons are based on the service furnished, and are available only by reputable wholesale, jobbing and manufacturing concerns, and by responsible and worthy financial, fiduciary, and business corporations. Specific terms may be obtained by addressing the Company at any of its offices. CORRESPONDENCE INVITED.

Offices in Canada

Edmonton, Alta.	Hamilton, Ont.	London, Ont.
Halifax, N.S.	Ottawa, Ont.	Quebec, Que.
Montreal, Que.	Toronto, Ont.	Vancouver, B.C.

St. John, N.B. Winnipeg, Man. Calgary, Alta. Victoria, B.C. Sydney, N.S.

THOS. C. IRVING, Gen. Man. Western Canada, Toronto

OPEN OFFICE IN TORONTO

Dominion Forge & Stamping Co. of Walkerville Takes Progressive Step for Convenience of Customers

For the convenience of their customers in Toronto and vicinity, and in Eastern Ontario, the Dominion Forge & Stamping Co., Limited, Walkerville, have opened an office in Toronto, at 510 Lumsden Building. This office has been opened particularly with a view to looking after the interests of manufacturers of munitions and other war materials, who are using forge component parts such as base plates, etc., made by the Dominion Forge & Stamping Co., Limited.

Mr. J. C. Armer, who has recently been appointed sales-manager for the Company, will spend a good deal of his time at the Toronto office. Mr. Armer is known to manufacturers in Canada because of the position he held until about eighteen months ago as vice-president and manager of the *Canadian Manufacturer* and other technical papers. Since then he has been on active service in Canada as an officer in the Canadian Engineers, his retirement from the service being occasioned by the decision of a Medical Board at Headquarters that he could not go overseas.

LAKE AND RAIL FREIGHT

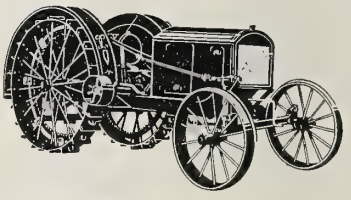
Shipments Will be Accepted by Canadian Pacific Railway Co. on April 20; First Sailing May 1

The Canadian Manufacturers Association has been advised that the Canadian Pacific Railway Company expects to accept "lake and rail" freight for points Fort William, Port Arthur and west on April 20th, and that the first sailing will leave Port McNicoll on May 1st; and to accept traffic on the same date at Owen Sound for intermediate lake ports.

GILSON

"Goes Like Sixty"

Tractors
Engines
Silo Fillers
Silos
Threshers



DOMINANT IN QUALITY AND SERVICE

Write for Catalogs

Gilson Mfg. Co. Ltd. 240 York St. Guelph, Can.

PRESSES

Made in Canada

HYDRAULIC PRESSES, PUMPS AND ACCUMULATORS

Forging, Nosing and Marking Presses for all Size Shells
Presses for General Purposes

WILLIAM A. PERRIN, Limited TORONTO CANADA

McClary's

Specialists in

HOTEL AND INSTITUTION KITCHEN APPLIANCES

and Manufacturers of the "FAMOUS" line of Goods including

Coal and Wood
FURNACES

Electric, Gas, Coal and Wood
STEEL AND CAST RANGES

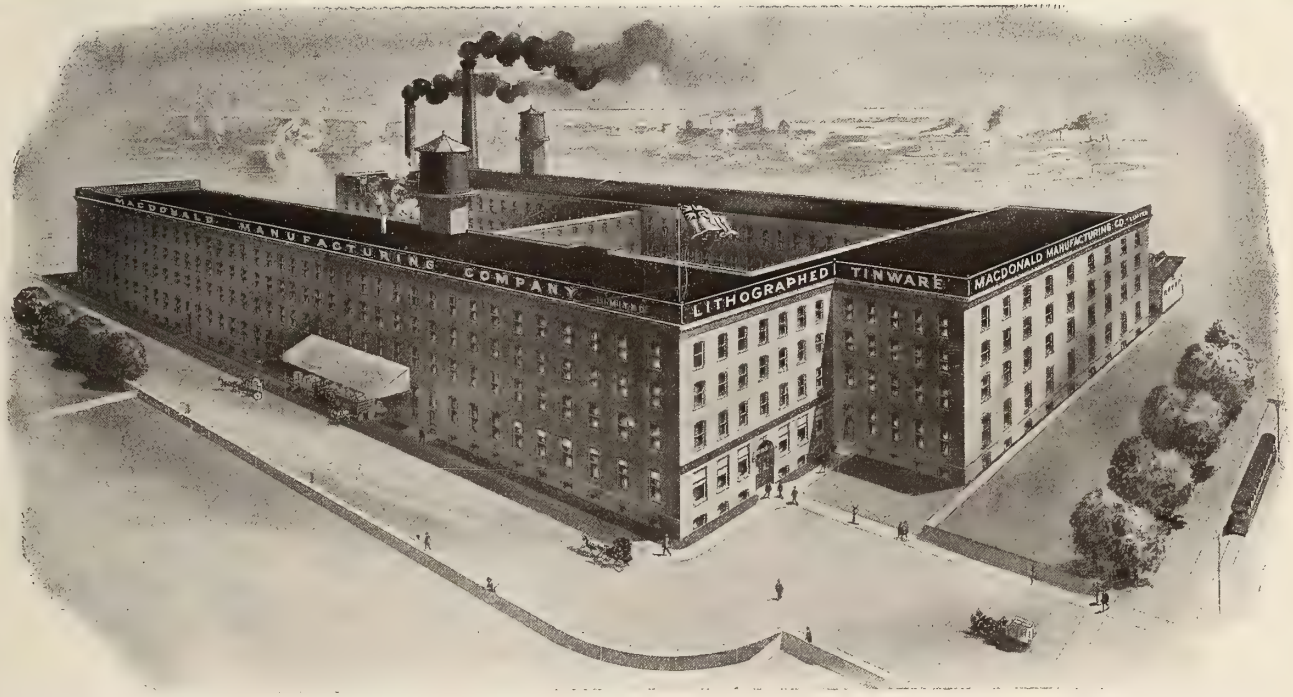
Coal, Gas, Wood and Oil
HEATERS

ENAMELWARE, TINWARE AND OTHER KITCHEN WARE

LONDON TORONTO
MONTREAL WINNIPEG
VANCOUVER

McClary's

ST. JOHN, N.B. HAMILTON
CALGARY SASKATOON
EDMONTON



MACDONALD MANUFACTURING CO., LIMITED, TORONTO

We Specialize on Cans or Boxes required for Customer's Exclusive use
Practically Nothing Else made in our Entire Plant
This Ensures Undivided Attention to Your Particular Order

PLAIN OR DECORATED TIN BOXES AND SIGNS

Buyers' Guide to Canadian Manufactures

A List of Articles which will Enable the Purchaser to Know the Manufacturers of Made-in-Canada Goods. For Rates of Insertion in this Department write to the Advertising Manager of "Industrial Canada," Toronto

ABRASIVE MATERIALS
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
*Dominion Abrasive Wheel Co., New Toronto, Ont.

ABRASIVES
*D. A. Brebner, Ltd., Toronto.

ACCOUNT BOOKS
*The Brown Bros., Ltd., Toronto.

ACETYLENE BURNERS
*The Prest-O-Lite Company.

ACETYLENE GAS
*The Prest-O-Lite Company.

ACETYLENE GAS BURNERS
Economic Acetylene Burner Co., Toronto.

ACIDS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal.

ADVERTISING NOVELTIES
Lawson & Jones. Ltd., London, Ont.

AERATED BEVERAGES
Charles Gurd & Co., Ltd., Montreal, Que.
J. J. McLaughlin, Ltd., Toronto.

AIR COMPRESSORS
*Canadian Ingersoll-Rand Co., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton. Ont.

AIR DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

ALCOHOL
*Hiram Walker & Sons, Limited, Walkerville, Ont.

ALE
E. L. Drewry, Winnipeg, Man.

ALUMINUM
*Northern Aluminum Co., Ltd., 1305 Traders Bank, Toronto.

ALUMINUM CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

AMMONIA
Canadian Ammonia Co., Ltd., Toronto.

ANGLE BARS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Steel Company of Canada, Limited. Hamilton, Ont.

ASBESTOS:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEATHING:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS SHEET AND PISTON PACKINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS STEAM PIPE AND BOILER COVERINGS
*Eureka Mineral Wool & Asbestos Co., Toronto.

ASBESTOS TEXTILES:
*Eureka Mineral Wool & Asbestos Co., Toronto.

ATTACHMENT PLUGS
*Crouse-Hinds Co., Ltd., Toronto.

AUTOGRAPHIC REGISTERS
*Autographic Register Co., Ltd., Montreal.

AUTOGRAPHIC REGISTER SYSTEMS
Business Systems, Ltd., Toronto.

AUTOMATIC SCREW MACHINE PRODUCTS
*United Brass & Lead, Ltd., Toronto

AUTOMOBILE ACCESSORIES,
*Northern Electric Co., Limited, Montreal.
*Tallman Brass & Metal Co., Hamilton, Ont.

AUTOMOBILE PARTS
*Dominion Forge & Stamping Co., Walkerville, Ont.
*United Brass & Lead, Ltd., Toronto

AWNING CORD (cotton)
Hamilton Cotton Co., Hamilton, Ont.

AXLES
Canada Forge Co., Ltd., Welland, Ont.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

AXLES, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

BABBITT METAL
Alonzo W. Spooner, Limited, Port Hope, Ont.
*Dominion Metal Co., Ltd., Sherbrooke, P.Q.
*The Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

BACON
E. W. Fearman Co., Ltd., Hamilton, Ont.

BAGS
*Scythes & Co., Ltd., Toronto.

BAGS, Cotton
The Canadian Bag Co., Ltd., Montreal, Que.

BAGS, jute
The Canadian Bag Co., Ltd., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

BAGS, travelling
J. Eveleigh & Co., Ltd., Montreal, Que.
Lamontagne, Ltd., Montreal, Que.
The M. Langmuir Mfg. Co., of Toronto, Ltd., Toronto.

BAKING JAPAN
*Berry Bros.. Ltd., Winnipeg, Man.

BAND RESAWS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

BAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

BANK AND OFFICE RAILINGS
*The Geo. B. Meadows, Toronto, Wire, Iron & Brass Works Co., Ltd., Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.

BANK FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

BANK RAILINGS and CAGES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London.

BANK SIGNS AND FITTINGS
*Tallman Brass & Metal Co., Hamilton. Ont.

BARRELS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.

BARS, iron
London Rolling Mill Co., Limited, London, Ont.

BARS, steel
London Rolling Mill Co., Limited, London. Ont.

BASEBALL GOODS
A. J. Reach Co., Brantford, Ont.

BATHS, enamelled
Amherst Foundry Co., Ltd., Amherst. N.S.

BATTERIES, dry
The Canadian National Carbon Co., Ltd., Toronto.
Canadian Carbon Company, Ltd., Toronto.

BEARINGS
*The Chapman Double Ball Bearing Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS, bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

BEARINGS, pillow block and upright
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEARINGS
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BEDS, camp folding
*Otterville Mfg. Co., Ltd., Otterville, Ont.

BEEF
E. W. Fearman Co., Ltd., Hamilton, Ont.

BEER
E. L. Drewry, Winnipeg, Man.

BELTING, chains
*Canadian Link-Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

BELTING, elevator
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.

BELTING, leather
The Beardmore Belting Co., Ltd., Toronto.
*J. L. Goodhue & Co., Danville, P.Q.
*Sadler & Howarth, Montreal.
*The D. K. McLaren Belting Co., Ltd., Montreal.
*The J. C. McLaren Belting Co., Ltd., Montreal.

BELTING, rubber
*Canadian Consolidated Rubber Co., Ltd., Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited, Toronto.

BELTING, stitched cotton duck
*Dominion Belting Co., Ltd., Hamilton.

BENT GOODS
The Crown Lumber Co., Woodstock, Ont.

BICYCLES AND ACCESSORIES
*Canada Cycle and Motor Co., Ltd., Toronto.

BISCUITS
The Montreal Biscuit Co., Montreal. Que.

BLACK SHEETS
*A. C. Leslie & Co., Montreal.

BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Ltd., Bolton. Ont.

BLANKETS, horse
Slingsby Mfg. Co., Ltd., Brantford, Ont.
J. Walsham & Son, Limited, Bolton, Ont.

BLASTING ACCESSORIES
Canadian Explosives, Ltd., Montreal, Que.

BLEACHING POWDER
Canadian Salt Co., Ltd., Windsor, Ont.

BLOWERS
*Sheldons, Ltd., Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

BOARDS, wood, binder, fibre specialties
*Beveridge Paper Co., Limited. Montreal.

BOATS OF ALL KINDS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

BOILER COMPOUND and OILS
Electric Boiler Compound Co., Ltd., Guelph, Ont.

BOILER PRESERVATIVES
*Beveridge Paper Co., Limited, Montreal.

BOILERS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Darling Bros., Montreal.
*Goldie & McCulloch Co., Limited, Galt, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
*Polson Iron Works, Ltd., Toronto.
J. & R. Weir, Montreal, Que.
Taylor-Forbes Co., Ltd., Guelph, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.

BOILERS, hot water or steam.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal, Que.

BOILERS, steam.
*Jenckes Machine Co., Sherbrooke, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
Steel and Radiation Ltd., Toronto.
Warden King, Ltd., Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILERS, steam and brass work
*The Waterous Engine Works Co., Ltd., Brantford, Ont.

BOILER STANDS
Anthes Foundry Ltd., Toronto.

BOLSTERS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.

BOLTS
*The National Acme Mfg Co., Montreal., Que.
*United Brass & Lead, Ltd., Toronto

BOLTS AND NUTS
*The Canadian Tube & Iron Co., Ltd., Montreal, Que.
*The Steel Company of Canada, Limited, Hamilton, Ont.
Starr Mfg. Co., Ltd., Dartmouth, N.S.
*United Brass & Lead, Ltd., Toronto

BOOKBINDERS
R. G. McLean, Toronto.
*The Brown Bros., Ltd., Toronto.

BOOKCASES
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

BOOKCASES, sectional (Gunn)
The George McLagan Furniture Co., Ltd., Stratford, Ont.

BOOKLETS
R. G. McLean, Toronto.

BOOKS, blank
*The Brown Bros., Ltd., Toronto.

BOOTS AND SHOES
Ames-Holden-McCready, Ltd., Montreal, Que.
J. Leckie Co., Ltd.
The John Ritchie Co., Ltd., Quebec, Que.

BOXES
*Crouse-Hinds Co., Ltd., Toronto.

BOXES, cellular board:
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls.

BOXES, rattle and soap
The Arlington Co. of Canada, Ltd., Toronto.

BOXES, steel shop
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

BOXES AND SHOOKS, wooden
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

BOXES, wooden
G. & J. Esplen, Montreal, Que.
Barchard & Co., Ltd., Toronto.

BRAIDS AND TRIMMINGS
The Moulton Mfg. Co., Limited, Montreal.

BRAKE SHOES
*Canadian Hart Wheels, Limited, Hamilton, Ont.

BRANDS, burning
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

*For Display Advertisement see Index, Pages 1715-1716

BRASS BOLTS AND NUTS
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS AND BRONZE WIRE
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
BRASS, BRONZE and ALUMINUM LETTERS
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS ENGRAVERS
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS FOUNDERS AND FINISHERS
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
BRASS GOODS
*Penberthy Injector Co., Ltd., Windsor.
*The Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*Mueller Mfg. Co., Sarnia.
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Ltd., Toronto.
*The Kerr Engine Co., Ltd., Walkerville, Ont.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS GOODS
*United Brass & Lead Ltd., Toronto.
BRASS PLATES
Geo. Booth & Son., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
BRASS RODS, SHEETS AND PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRASS SIGNS AND MEMORIALS
*Tallman Brass & Metal Co., Hamilton, Ont
BRASS TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont
BRASS WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont
BRASS WORK, church
Pritchard, Andrews Co. of Ottawa, Ltd., Ottawa, Ont.
BRASS WORK, special
Bawden Machine Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*United Brass & Lead, Ltd., Toronto
BRICK
National Brick Co. of Laprairie, Laprairie, P.Q.
Port Credit Brick Co., Port Credit.
BRICK, enamel
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, pressed
National Brick Co. of Laprairie, Laprairie, P.Q.
BRICK, rubbing
*Canadian Hart Wheels, Limited, Hamilton, Ont.
BRICK, sewer
National Brick Co. of Laprairie, Laprairie, P.Q.
BRIDGES, Railway and Highway
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Wakerville, Ont.
*The Canadian Bridge Co., Ltd., Hamilton, Ont.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
BROOMS
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont
BRONZE, SHEETS, RODS, PLATES
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
BRUSHES
Simms, T. S., & Co., Limited, St. John, N.B.
Stevens-Hepner Co., Limited, Port Elgin, Ont.

BRUSHES, carbon
Canadian National Carbon Co., Ltd., Toronto.
BUCKET TANKS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The General Fire Equipment Co., Limited, Toronto, Ont.
BUCKLES, shoe and coat
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
BUILDING BLOCKS, vitrified, salt glazed
Standard Clay Products, Ltd., St. Johns, Que.
Toronto.
BUILDING FELT and PAPER
*Eureka Mineral Wool & Asbestos Co., Toronto.
*Paterson Manufacturing Company. Toronto and Montreal.
BUILDERS, ship
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
BURLAPS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Ltd., Toronto.
BURLAPS, decorative
Dominion Oil Cloth Co., Limited, Montreal, Que.
CABLE ACCESSORIES
*Crouse-Hinds Co., Ltd., Toronto.
CABLES, electric light, power, telephone and telegraph
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CABLES, transmission and telephones
*Eugene F. Phillips Electrical Works, Ltd., Montreal, Que.
CABLES, Transmission and Cable
*Northern Electric Co., Limited, Montreal, Que.
CABLES, wire
The Dominion Wire Rope Co., Ltd., Montreal, Que.
*The B. Greening Wire Co., Ltd., Hamilton, Ont.
CALENDARS, ADVERTISING NOVELTIES, etc.
Lawson & Jones, Limited, London, Ont.
CAMERAS
Canadian Kodak Co., Limited, Toronto.
CAMPERS' OUTFITTERS
Slingsby Mfg. Co., Ltd., Brantford, Ont.
CANADA SILVER
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
CANOES
Peterboro Canoe Co., Ltd., Peterboro, Ont.
*Canadian Canoe Co., Ltd., Peterborough.
CANS, baking powder, etc.
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, fruit
American Can Co., Montreal and Hamilton.
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, iron, lead and putty
A. R. Whittall Can. Co., Ltd., Montreal.
CANS, ROVING, ETC., fibre
*Beveridge Paper Co., Limited, Montreal.
CANS, tin
A. R. Whittall Can. Co., Ltd., Montreal.
American Can Co., Montreal and Hamilton.
CANVAS
*Scythes & Co., Ltd., Toronto.
CAPS, cloth
John W. Peck & Co., Ltd., Montreal, Que.
CARBIDE
*Canada Carbide Co., Ltd., Montreal, Que.
*Union Carbide Co. of Canada, Ltd. Works, Welland, Ont. Head Office, Toronto.
CARBON BRUSHES
Canadian Carbon Co., Limited, Toronto.
CARBON PRODUCTS
Canadian Carbon Co., Limited, Toronto.
CARBONS, arc light
Canadian Carbon Co., Limited, Toronto.
The Canadian National Carbon Co., Ltd.

CARBONS, flame
Canadian Carbon Co., Limited, Toronto.
CARBONS (headlight)
*Crouse-Hinds Co., Ltd., Toronto.
CARBONIC ACID GAS
Canadian Carbonate Co., Montreal.
CARD RECORD SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
CARPETS AND RUGS
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPETS AND RUGS, Axminster and ingrain
Toronto Carpet Mfg. Co., Limited,
CARPETS AND RUGS, Brussels and Wilton
Toronto Carpet Mfg. Co., Limited, Toronto.
CARPET YARNS, worsted and wool
Toronto Carpet Mfg. Co., Limited, Toronto.
CARRIAGES, baby, etc.
Canada Furniture Manufacturers, Ltd., Woodstock, Ont.
CARRIERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.
CARRIERS, box and barrel
*Canadian Mathews Gravity Carrier
CARRIERS, brick
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*Richards-Wilcox Canadian Co., Ltd., London, Ont.
CARS
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*National Steel Car Co., Limited, Hamilton, Ont.
CARS, industrial
Hammant Steel Car and Engineering Works, Hamilton.
CARTONS, lithographed
Harris Lithographing Co., Toronto.
CASTINGS
*Tallman Brass & Metal Co., Hamilton, Ont.
CASTINGS, aluminum
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
CASTINGS, brass
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Crouse-Hinds Co., Ltd., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
CASTINGS, brass and bronze
*Tallman Brass & Metal Co., Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
CASTINGS, grey iron
*Crouse-Hinds Co., Ltd., Toronto.
*Dodge Mfg. Co., Toronto.
*Canadian Car & Foundry Co., Ltd., Montreal, Que.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
CASTINGS, malleable iron
*Crouse-Hinds Co., Ltd., Toronto.
*Galt Malleable Iron Co., Ltd., Galt, Ont.
CASTINGS, steel
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton, Ont.
*Hull Iron and Steel Foundry, Ltd., Hull, P.Q.
*Wm. Kennedy & Sons, Ltd., Owen Sound.
CATALOGUE MAKERS
Grip, Ltd., Toronto.
CAUSTIC SODA
Canadian Salt Co., Ltd., Windsor, Ont.
CELLBOARD
Adams Cellboard Co., Toronto, Ont.
CEMENT GUNS
Steel and Radiation, Ltd., Toronto.
CEMENT, HIGH TEMPERATURE
*Beveridge Paper Co., Ltd., Montreal.
CHAINS, for elevators, conveyors and drives
*Canadian Link-Belt Co., Toronto.
CHAIRS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

CHAIRS, assembly hall
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, folding
Stratford Mfg. Co., Ltd., Stratford, Ont.
CHAIRS, rattan and upholstered
Imperial Rattan Co., Ltd., Stratford, Ont.
CHAIR SEATS, fibre
*Beveridge Paper Co., Limited, Montreal.
CHECKS, swing checks, etc
*Mueller Mfg. Co., Ltd., Sarnia.
CHEMICALS
*The Grasselli Chemical Co., Ltd., Toronto.
*The Nichols Chemical Co., Ltd., Montreal, Que.
CHEMICAL LABORATORY APPARATUS
The Geo. M. Hendry Co., Limited, Toronto.
CHEMISTS, INDUSTRIAL
*Milton Hersey Co., Montreal.
CHICLETS AND CHEWING GUM
Canadian Chewing Gum Co., Ltd., Toronto.
CIGARETTES AND TOBACCO
Philip Morris & Co., Limited, Montreal, Que.
CIRCULAR CUTTERS, solid steel
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.
CIRCULAR SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
CLAM SHELL BUCKETS
*M. Beatty & Sons, Ltd., Welland, Ont.
CLOCKS, TIME
*International Business Machines, Limited, Toronto.
CLOCKS, WATCHMEN'S
*The General Fire Equipment Co., Limited, Toronto.
CLOSET SEATS
*Goderich Organ Co., Goderich, Ont.
CLOTHING
John W. Peck & Co., Ltd., Montreal, Que.
Mackenzie & Co., Ottawa, Ont.
CLOTHING, leather and sheepskin lined coats
*A. R. Clarke & Co., Ltd., Toronto.
CLOTHING, Mackinaw
The Carss Mackinaw Clothing Co., Ltd., Orillia, Ont.
CLOTHES LINES, cotton
Hamilton Cotton Co., Hamilton, Ont.
CLUTCHES
*Dodge Mfg. Co., Ltd., Toronto.
CLUTCHES, conveyors
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
COAL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.
Standard Fuel Co., Toronto.
COAL CUTTERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
COBALT OXIDE
The Coniagas Reduction Co., Ltd., St. Catharines, Ont.
COCOA AND CHOCOLATE PREPARATIONS
Walter Baker & Co., of Canada, Ltd., Montreal, Que.
COFFEE
S. H. Ewing & Sons, Montreal, Que.
COLD DRAWN SHAPES, flats, squares and hexagons
*The Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
COLD STORAGE DOORS
John Hillock & Co., Ltd., Toronto.
COLLAR BUTTONS
The Arlington Co. of Canada, Ltd., Toronto.
COLLARS
The Standard Shirt Co., Limited, Montreal, Que.
COLLARS, coated linen
Parsons & Parsons Canadian Co., Hamilton, Ont.
COLLARS, shaft
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
COLORS
Brandram-Henderson, Limited, Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.

For Display Advertisement see Index, Pages 1715-1716

COMBS, fine dressing and name
The Arlington Co. of Canada, Ltd., Toronto.
COMMERCIAL STATIONERY
*Brown Bros., Ltd., Toronto.
CONCRETE COATINGS, PAINTS, ETC.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
CONDUITS FOR INTERIOR WIRING
*Conduits Company, Ltd., Toronto.
CONDULET BOX FITTINGS
*Crouse-Hinds Co., Ltd., Toronto.
CONDULETS (Marine)
*Crouse-Hinds Co., Ltd., Toronto.
CONFECTIONERY
Ganong Bros., Ltd., St. Stephens, N.B.
Moirs, Limited, Halifax, N.S.
The Montreal Biscuit Co., Montreal, Que.
CONTAINER BOARD—strong container
Bathurst Lumber Co., Ltd., Bathurst, N.B.
CONTRACTOR'S PLANT
*M. Beatty & Sons, Ltd., Welland, Ont.
*Canadian Allis-Chalmers, Limited, Toronto.
CONVEYORS
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
COPPER
*Eugene F. Phillips, Electrical Works, Limited, Montreal.
*Booth-Coulter Copper & Brass Co., Limited. Toronto.
COPPER, SHEETS, PLATES, BARS, RODS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.
COPPER SHEETS AND PLATES
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.
COPPERSMITHS
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER TUBING, seamless
Canadian Seamless Wire Co., Ltd., Toronto.
*Booth-Coulter Copper & Brass Co., Limited, Toronto.
COPPER WIRE
Canadian Seamless Wire Co., Ltd., Toronto.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
CORKS
S. H. Ewing & Sons, Montreal, Que.
CORK CARPET
Dominion Oil Cloth Co., Ltd., Montreal, Que.
CORRUGATED PAPER BOXES
Adams Cellboard Co., Toronto.
Corrugated Paper Box Co., Ltd., Toronto.
*Hinde & Dauch Paper Co., Toronto.
*Martin Corrugated Paper & Box Co., Limited, Toronto.
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.
CORUNDUM, artificial
*D. A. Brebner, Ltd., Toronto.
CORSETS
Dominion Corset Co., Quebec, Que.
COTTONS
*Dominion Textile Co., Limited, Montreal, Que.
*Montreal Cottons, Ltd., Valleyfield, P.Q.
COTTONADES
Hamilton Cotton Co., Hamilton, Ont.
COUPLERS
*Canadian Steel Foundries, Ltd., Welland, Ont.
COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
CRANES
*Northern Crane Works, Walkerville, Ont.
CRANKSHAFTS
Canada Forge Co., Ltd., Welland, Ont.
CREAM CHEESE, Ingersoll
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
CREAM SEPARATORS AND MILK CLARIFIERS
De Laval Dairy Supply Co., Peterboro, Ont.
The Renfrew Machinery Co., Ltd., Renfrew, Ont.
CREAMERY AND CHEESE FACTORY MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
CREOSOTED MATERIALS
*Paterson Mfg. Co., Toronto and Montreal.
CRUSHED STONE
The Hagersville Contracting Co., Limited, Hagersville, Ont.
CRUSHING ROLLS
*Jenckes Machine Co., Sherbrooke, Que.
CUPOLAS
*Sheldons, Ltd., Galt, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
CUPS, presentation
Standard Silver Co., Toronto.
CUPS, grease and oil
*The Canadian Winkley Co., Ltd., Windsor, Ont.
CURLED HAIR
*Delany and Pettit, Ltd., Toronto.
CURTAINS, chenille
Hamilton Cotton Co., Hamilton, Ont.
CUTLERY
Standard Silver Co., Toronto.
CUTTERS, (Machine)
*Pratt & Whitney Co., Dundas.
DECK PLUGS (electric marine)
*Crouse-Hinds Co., Ltd., Toronto.
DENIMS
Hamilton Cotton Co., Hamilton, Ont.
DERAILS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
DESIGNERS
Ontario Engraving Co., Hamilton, Ont.
DESIGNERS and PRINTERS OF BOOKLETS, ETC.
Grip, Ltd., Toronto.
DESKS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
DESSICATED VEGETABLES
Grahams Limited, Belleville.
DIES
*John Whitfield Co., Toronto.
DINING ROOM SUITES
The George McLagan Furniture Co., Limited, Stratford, Ont.
DIES
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.
DISINFECTING APPARATUS
Spramotor Co., London, Ont.
DOOR HANGERS
*Richards Wilcox Canadian Co., Ltd., London, Ont.
DREDGES
*M. Beatty & Sons, Limited, Welland, Ont.
DRESSING, belt.
Sadler & Haworth, Montreal, Que.
DRESS AND CLOAK TRIMMINGS
J. Henry Peters Co., 1 Mincing St., Toronto.
DRIFT BOLT DRIVERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILL PRESSES
*Canada Machinery Corporation, Limited, Galt, Ont.
DRILL SHARPENERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*Pratt & Whitney Co., Dundas.
DRILLS, core
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
DRILLS, rock
*Canadian Ingersoll Rand Co., Montreal, Que.
DRIFT BOLTS OR SPIKES
London Rolling Mill Co., Limited, London, Ont.
DROP FORGINGS
*Canadian Billings & Spencer, Ltd., Welland, Ont.
DROP HAMMERS
*Canada Machinery Corporation, Limited, Galt, Ont.
DRUMS, steel, and containers
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
DRY CELLS, electric
Canadian Carbon Co., Limited, Toronto.
DRY COLORS
P. D. Dods & Co., Ltd., Montreal.
The Imperial Varnish & Color Co., Limited, Toronto.
R. C. Jamieson & Co., Ltd., Montreal, Que.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
DUMB WAITERS
Turnbull Elevator Mfg. Co., Toronto.
DURABLE WIRE ROPE
The Dominion Wire Rope Co., Ltd., Montreal, Que.
DYNAMITE
Canadian Explosives, Limited, Montreal, Que.
DYNAMOS
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
DYNAMOS, plating
*Jones & Moore Electric Co., Ltd., Toronto.
EIDERDOWN
Galt Knitting Co., Ltd., Galt.
ELECTRIC APPLIANCES
*Canadian Crocker-Wheeler Co., Limited, St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
ELECTRIC APPLIANCES, fibre, all purposes
*Beveridge Paper Co., Limited, Montreal.
ELECTRICAL COMPOUNDS
Standard Paint Co. of Canada, Ltd., Montreal, Que.
ELECTRIC COOKING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELECTRIC LAMPS
Packard Electric Co., Limited, Toronto.
ELECTRIC PLATE WARE
Roden Bros., Ltd., Toronto.
ELECTRIC BATTERIES
Canadian Carbon Co., Limited, Toronto.
ELECTRIC RAILWAY EQUIPMENT
*Crouse-Hinds Co., Ltd., Toronto.
ELECTROPLATING
*United Brass & Lead, Ltd., Toronto
ELECTROTYPING
Central Press Agency, Toronto.
ELECTRICAL SUPPLIES
*Canadian General Electric Company, Ltd., Toronto.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
*Jones & Moore Electric Co., Ltd., Toronto.
*Northern Electric Co., Limited, Montreal, Que.
ELECTRO-SILVER PLATED WARE
Standard Silver Co., Toronto.
ELEVATING MACHINERY
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Toronto.
ELEVATORS
*Jenckes Machine Co., Sherbrooke, Que.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
Turnbull Elevator Manufacturing Company, Toronto.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.
ELEVATORS FOR ALL PURPOSES
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ELEVATOR GATES AND DOORS
Turnbull Elevator Mfg. Co., Ltd., Toronto.
ELEVATOR GUARDS
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*Canada Wire and Iron Works, Hamilton, Ont.
ELEVATORS, hydraulic and electric
John McDougall Caledonian Iron Works Co., Ltd., Montreal, Que.
EMERY DRESSERS and STANDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY GRINDERS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
EMERY WHEEL GUARDS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
ENAMELS
R. C. Jamieson & Co., Limited, Montreal, Que.
The Imperial Varnish & Color Co., Ltd., Toronto.
ENAMEL MANUFACTURERS AND DECORATORS
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
ENAMEL AND TIN WARE
McClary Mfg. Co., London, Ont.
ENGINES
*E. Leonard & Sons, London, Ont.
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & R. Weir, Montreal, Que.
*Jenckes Machine Co., Sherbrooke, Que.
*Polson Iron Works, Limited, Toronto.
*Sheldons, Ltd., Galt, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, gas and gasoline
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Hamilton Motor Works Ltd., Hamilton.
*Massey-Harris Co., Ltd., Toronto.
ENGINES, gasoline, tractor, plowing and threshing
*Sawyer-Massey Co., Ltd., Hamilton, Ont.
ENGINES, hoisting
*M. Beatty & Sons, Welland, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
ENGINES, oil, gasoline and kerosene
*Gilson Manufacturing Co., Ltd., Guelph.
ENGINES, steam plowing and threshing
Sawyer-Massey Co., Limited, Hamilton, Ont.
ENGRAVERS
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton.
ELECTRICAL AND GAS FIXTURES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg. Co., Limited, Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
ELECTRIC HEATING APPLIANCES
*Canadian General Electric Company, Ltd., Toronto.
ELEVATORS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
ENGRAVERS, half-tone
Grip, Limited, Toronto.
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS, wood
Ontario Engraving Co., Hamilton, Ont.
ENGRAVERS AND PRINTERS steel plate
American Bank Note Co., Ottawa, Ont.
ENGRAVERS AND PRINTERS banknote
American Bank Note Co., Ottawa, Ont.
ENGRAVING
*J. L. Jones Engraving Company, Toronto.
ENGRAVING, copper and steel plate
Pritchard-Andrews Co. of Ottawa Limited. Ottawa, Ont.
ENSILAGE AND STRAW CUTTERS
J. Fleury's Sons, Aurora, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
EVAPORATED APPLES
Grahams Limited, Belleville.
ENVELOPES
Barber-Ellis Co., Ltd., Toronto.
Canada Envelope Co., Montreal, Que.
EXCELSIOR
*Delany & Pettit, Ltd., Toronto.

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EXCELSIOR PADS
*Delany & Pettit, Ltd., Toronto.
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
EXPERTS IN PATENT CAUSES
Ridout & Maybee, Toronto.
EXPLOSIVES, high
Canadian Explosives Ltd., Montreal.
FACE PLATE JAWS
Ker & Goodwin, Brantford, Ont.
FACTORY SUPPLIES, cheese and creamery
De Laval Dairy Supply Co., Ltd., Montreal, Que.
FANS
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.
FASTENERS, belt
*Sadler & Haworth, Montreal, Que.
FELTS, pulp and paper makers
Ayers Limited, Lachute Mills, P.Q.
*Beveridge Paper Co., Limited Montreal.
FENCES AND GATES
*Dennis Wire & Iron Works Co., London, Ont.
*Canada Wire and Iron Works, Hamilton, Ont.
FENCING AND GATES, woven wire
*Canada Wire and Iron Goods Co., Hamilton, Ont.
FENCING, wire
C. H. Johnson & Sons, Limited, Montreal, Que.
FIBRE PAILS
*The E. B. Eddy Co., Ltd., Hull, Que.
FIBRE, VULCANIZED, hard and flexible
*Beveridge Paper Co., Limited, Montreal.
FILES
Henry Disston & Sons, Limited, Toronto.
*The Nicholson File Co., Port Hope, Ont.
FILING CABINETS
*Office Specialty Co., Newmarket, Ont.
FILING EQUIPMENT, wood & steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILING SYSTEMS
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
FILTER PAPERS
*Beveridge Paper Co., Limited, Montreal.
FIRE ALARMS
*Northern Electric Co., Limited, Montreal, Que.
FIRE APPARATUS
*R. S. Bickle Co., Woodstock, Ont.
FIRE BRICK
Dominion Fire Brick and Clay Products, Ltd., Moose Jaw
FIRE BRICK AND CEMENT
*Beveridge Paper Co., Ltd., Montreal.
FIRE BRICK, JOINTLESS
*Beveridge Paper Co., Ltd., Montreal.
FIRE DOOR HARDWARE
*Richards Wilcox Canadian Co., Limited, London, Ont.
FIRE DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
FIRE ENGINES
*R. S. Bickle Co., Woodstock, Ont.
Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE ESCAPES
*Canada Wire and Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.
FIRE EXTINGUISHERS
*A. B. Ormsby Co., Ltd., Toronto.
*Booth-Coulter Copper and Brass Co., Limited, Montreal, Que.
*The General Fire Equipment Co., Limited, Toronto, Ont.
FIRE FIGHTING APPARATUS
*The Waterous Engine Works Co., Limited, Brantford, Ont.
FIRE HOSE
*Canadian Consolidated Rubber Co., of Canada, Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha and Rubber, Ltd., Toronto.
FIRE PREVENTION MATERIAL
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*Eureka Mineral Wool & Asbestos Co., Toronto.
*The General Fire Equipment Co., Limited, Toronto.
FIRE PROOF WINDOWS AND DOORS
*A. B. Ormsby Co., Ltd., Toronto.
*Pedlar People, Ltd., Oshawa, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
FIRE SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*The General Fire Equipment Co., Limited, Toronto.
*Purdy Mansell Co., Toronto.
*H. G. Vogel Co., Montreal, Que.
FIRE AND WATER DEPARTMENT SUPPLIES
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
The Garth Co., Montreal, Que.
FISH, Atlantic Sea-Foods
Maritime Fish Corporation Ltd., Montreal, Que.
FITTINGS FOR SOIL PIPE
Anthes Foundry, Ltd., Toronto.
FITTINGS, steam
Warden King, Ltd., Montreal, Que.
FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.
FLAGS
*Scythes & Co., Limited, Toronto.
FLASHLIGHTS
Canadian Carbon Co., Toronto.
FLEXIBLE COUPLINGS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
FLOODLIGHTS (electric)
*Crouse-Hinds Co., Ltd., Toronto.
FLOORING, hardwood
Seaman Kent Co., Ltd., Meaford, Ont.
FLOUR MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
FLUE LINERS
Standard Clay Products, Ltd., St. Johns, Que.
FORGES
*Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
*Sheldons, Limited, Galt, Ont.
FORGINGS
Canada Forge Co., Ltd., Welland, Ont.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
FORGINGS, drop
*Dominion Forge and Stamping Co., Walkerville, Ont.
FOUNDRY EQUIPMENT
*Northern Crane Works, Limited, Walkerville, Ont.
FOUNTAIN FRUITS and Juices
J. J. McLaughlin Ltd., Toronto.
FOUNTAINS, drinking
*Mueller Mfg. Co., Ltd., Sarnia.
FRICTION CLUTCH PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
FROGS AND CROSSINGS, manganese
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.
FUEL
Standard Fuel Co., Toronto.
FUR GARMENTS, men's and women's
Holt, Renfrew, Ltd., Quebec.
FUR GOODS
John W. Peak & Co., Limited. Montreal, Que.
FUR TRIMMINGS, ornaments and buttons
J. Henry Peters Co., 1 Mincing St., Toronto.
FURNACES
McClary Mfg. Co., London, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
FURNACES, hot air
Bedford Stove Co., Bedford, Que.
FURNACES, oil burning
*Mechanical Engineering Works, Montreal, Que.
FURNITURE, hall
The George McLagan Furniture Co., Limited, Stratford, Ont.
FURNITURE, office
The Canadian Office and School Furniture Co., Ltd., Preston, Ont.
FURNITURE, reed and rattan
Imperial Rattan Co., Ltd., Stratford, Ont
FUSE BOXES
*Crouse-Hinds Co., Ltd., Toronto.
FUSES
*Economy Fuse and Mfg. Co., Montreal.
GALVANIZED IRON
*A. C. Leslie & Co., Montreal.
GALVANIZED SHEETS
*Dominion Sheet Metal Co., Hamilton, Ont.
GALVANIZERS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*Ontario Wind Engine and Pump Co., Limited, Toronto.
*The Pedlar People, Ltd., Oshawa.
GASOLINE ENGINES
*Ontario Wind & Pump Co., Ltd., Toronto.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
GASOLINE FIRE ENGINES
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
GASOLINE MOTORS, "Imperial" Marine
Bruce Stewart & Co., Ltd., Charlottetown, P.E.I.
GASOLINE, storage systems
*Steel Trough and Machine Co., Ltd., Tweed, Ont.
GASOLINE STORAGE SYSTEMS, special underground
S. F. Bowser & Co., Toronto.
GASOLINE
*The Imperial Oil Co., Limited, Toronto.
GAUGES
*Brown Engineering Corporation, Toronto.
*John Whitfield Co., Toronto.
GEARS, cut
*Brown Engineering Corporation, Toronto.
*Hamilton Gear & Machine, Toronto.
*Winnipeg Gear & Engineering Co., Ltd., Winnipeg.
GEARS, noiseless fibre, also reinforced
*Beveridge Paper Co., Limited, Montreal.
GELATINE
Canada Gelatine Co., Ltd., Brantford.
GENERATORS
*Canadian Crocker-Wheeler Co., Ltd., St. Catharines, Ont.
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
GENERATORS, electric
*Canadian General Electric Company, Ltd., Toronto.
GINS
The Melchers Gin & Spirits Distillery Co., Ltd., Montreal, Que.
GLASSWARE
Dominion Glass Co., Limited, Montreal, Que.
GLASSWARE, cut
Roden Bros., Ltd., Toronto.
GLASS FOR BUILDINGS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS BENDERS
Toronto Plate Glass Importing Co., Limited, Toronto.
GLASS, mirror
Toronto Plate Glass Importing Co., Limited, Toronto
GLOVES AND MITTS
*A R. Clarke & Co., Ltd., Toronto.
Craig, Cowan Co., Ltd., Toronto.
GLUE
Canada Glue Co., Ltd., Brantford.
*Delany and Pettit, Ltd., Toronto.
GOLD-FILLED WIRE AND PLATE
Canadian Seamless Wire Co., Toronto.
GOLD AND SILVER REFINERS
Canadian Seamless Wire Co., Toronto.
GRAIN CRUSHERS (Rapid Easy)
J. Fleury's Sons, Aurora, Ont.
GRAPE JUICE
J. J. McLaughlin, Ltd., Toronto.
The Welch Co., Ltd., St. Catharines.
GRATES
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
GRAVITY CARRIERS
*Canadian Mathews Gravity Carrier Co., Toronto.
GRILLES, metal
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
GRINDER, bench
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
GRINDERS, portable
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
GRINDERS, Pedestal and Bench
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING and Polishing Machinery
*Canadian Hart Wheels, Limited, Hamilton, Ont.
GRINDING WHEELS
*Canadian Hart Wheels, Limited, Hamilton, Ont.
*The Dominion Abrasive Wheel Co., Limited, New Toronto.
GRINDSTONES
*Richards-Wilcox Canadian Co., Limited, London, Ont.
GUARDS (Condulet)
*Crouse-Hinds Co., Ltd., Toronto.
GUNN SECTIONAL BOOKCASES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
GUY ANCHORS
B. J. Coghlin Co., Ltd., Montreal.
GUY RODS
*Crouse-Hinds Co., Ltd., Toronto.
GYPSUM, crushed
*Albert Mfg. Co., Hillsborough, N.B.
GYPSUM PRODUCTS
*Manitoba Gypsum Co., Ltd., Winnipeg, Man.
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.
HACK SAW BLADES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW FRAMES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HACK SAW MACHINES
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HALL FURNITURE
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.
HAMS
F. W. Fearman Co., Ltd., Hamilton, Ont.
HANDLES (Axe, pick, sledge hammers, etc.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
HANDLES, wood
*Toy Products Ltd., Farm Point, P.Q.
HAND SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HANGERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
HARDWARE
*Richards-Wilcox Canadian Co., Limited, London, Ont.
Taylor-Forbes Co., Limited, Guelph, Ont.
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.
HARDWOOD FLOORING
Wilson Bros. Limited, Collingwood, Ont
HARDWOOD INTERIOR FINISH
Wilson Bros., Ltd., Collingwood, Ont.
HARDWOOD VENEER DOORS TO DETAIL
Wilson Bros., Ltd., Collingwood, Ont.
HARNESS
Lamontagne Ltd., Montreal, Que.
HATS, men's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's straw
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' and children's felt and beaver
The Crown Hat Co., Limited, Galt, Ont.
HATS, ladies' felt and straw
Toronto Hat Mfg. Co., Toronto.
HAULAGE, Wire Rope
The Dominion Wire Rope Co., Ltd., Montreal, Que.
HEADING SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.
HEADLIGHT (electric)
*Crouse-Hinds Co., Ltd., Toronto.
HEATERS
*Waterous Engine Works Co., Ltd., Brantford, Ont.

HEATERS, feed water
*Darling Bros., Ltd., Montreal.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

HEATING APPLIANCES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Limited, Galt, Ont.
*The Canadian Blower & Forge Co., Limited, Kitchener, Ont.

HEATING SYSTEMS
*C. A. Dunham Co., Ltd., Toronto.

HEMLOCK, union and oak sole
Breithaupt Leather Co., Ltd., Kitchener, Ont.

HESSIANS
The Canadian Bag Co., Limited, Montreal, Que.
*Scythes & Co., Limited, Toronto.

HINGES
*The Steel Co. of Canada, Limited, Hamilton, Ont.

HOISTS
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOISTS, electric and pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOISTING MACHINERY
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

HOSE, fire
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd., Toronto.

HOSE, half, Imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.

HOSE, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.

HYDRAULIC PRESSES
*Bawden Machine Co., Limited, Toronto.
*William R. Perrin, Ltd., Toronto.

HYDRO ELECTRIC PLANTS
*Canadian Allis-Chalmers, Limited, Toronto.

ICE CREEPERS
Parmenter & Bulloch Co., Limited, Gananoque, Ont.

ICE-MAKING MACHINERY
The Linde Canadian Refrigeration Co., Limited, Montreal, Que.

INCUBATORS & BROODERS
Lee Mfg. Co., Ltd., Pembroke, Ont.

INGOT METALS
*Brown's Copper and Brass Rolling Mills, Ltd., New Toronto.

INJECTORS, automatic and autopositive
Penberthy Injector Co., Limited, Windsor, Ont.

INSERTED TOOTH SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

INSULATING COMPOUNDS
The Imperial Varnish & Color Co., Ltd., Toronto.

INSULATING PAPER AND FIBRE
*Beveridge Paper Co., Limited, Montreal.

INSULATORS
*Crouse-Hinds Co., Ltd., Toronto.

INTERLOCKING RUBBER TILING
*Gutta Percha & Rubber Mfg. Co., of Toronto, Limited, Toronto.

INVERTS
Standard Clay Products, Ltd., St. Johns, Que.

IRON
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

IRON, refined bar
Starr Mfg. Co., Ltd., Dartmouth, N.S.

IRON AND STEEL BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.

IRON STAIRWAYS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*McGregor & McIntyre, Ltd., Toronto.

IRONWORK, architectural
*Canadian Allis-Chalmers, Limited, Toronto.
*Canada Wire & Iron Goods Co., Hamilton, Ont.

IRONWORK, ornamental
*Canada Wire & Iron Goods Co., Hamilton, Ont.

IRON, LEAD AND PUTTY
A. R. Whittall, Montreal, Que.

JACKS
Globe Engineering Co., Ltd., Hamilton

JAM, canned goods, etc.
E. D. Smith & Son, Limited.

JAPANS, enamels, etc.
A. Muirhead Co., Ltd., Toronto.
The Imperial Varnish & Color Co., Ltd., Toronto.

JIGS AND TOOLS
*Brown Engineering Corporation, Toronto.

JOINTERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

JELLY POWDER
S. H. Ewing & Sons, Montreal, Que.

JEWELRY, enamelled souvenir
Caron Bros., Montreal, Que.

JEWELRY, gold-filled
Caron Bros., Montreal, Que.

JOIST HANGERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

JUNCTION BOXES, cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

KELSEY WARM AIR GENERATOR
The Jas. Smart Mfg. Co., Limited, Brockville, Ont.

KILNS
*Sheldons, Limited, Galt, Ont.

KINDLING
Standard Fuel Co., Toronto.

KNIFE GRINDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*W. H. Banfield & Sons, Toronto.

KNITTED GOODS
*Penman's, Limited, Paris, Ont.

KNIVES
*Galt Knife Co., Ltd.
Henry Disston and Sons, Toronto
The Peter Hay Knife Co., Limited, Galt, Ont.
Simonds Canada Saw Co., Limited, Montreal, Que.

KNIVES, pulp and paper
Henry Disston and Sons, Toronto.
The Peter Hay Knife Co., Limited, Galt, Ont.

KODAKS AND PHOTOGRAPHIC SUPPLIES
Canadian Kodak Co., Ltd., Toronto

LABELS
Lawson & Jones, Ltd., London, Ont.

LABELS, lithographed
Harris Lithographing Co., Toronto

LACE LEATHER
F. O. McCordick, St. Catharines, Ont.
*Sadler & Haworth, Montreal, Que
*The D. K. McLaren Belting Co., Limited, Montreal, Que.
*The J. C. McLaren Belting Co., Limited, Montreal, Que.

LADDERS
Stratford Mfg. Co., Ltd., Stratford, Ont.

LADDERS, step.
*Otterville Mfg. Co., Ltd., Otterville, Ont.

LADLES, foundry
*Northern Crane Works, Limited, Walkerville, Ont.

LAGER
E. L. Drewry, Winnipeg, Man.

LAMP GLOBES
*Crouse-Hinds Co., Ltd., Toronto.

LARD
F. W. Fearman Co., Ltd., Hamilton, Ont.

LATH
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.

LATHE CHUCKS
Ker & Goodwin, Brantford, Ont.

LATHE-DOGS
Canadian Billings & Spencer, Ltd., Welland, Ont.

LATHES
*Canada Machinery Corporation, Limited, Galt, Ont.

LAUNCHES
Peterboro Canoe Co., Ltd., Peterboro, Ont.

LAWN MOWERS
Taylor-Forbes Co., Limited, Guelph, Ont.

LAWN SWINGS
Stratford Mfg. Co., Ltd., Stratford, Ont.

LAVATORIES, enameled
Amherst Foundry Co., Limited, Amherst, N.S.

LAUNDRY SINKS
Amherst Foundry Co., Limited, Amherst, N.S.

LEAD GRINDERS
Benjamin Moore & Co., Limited, Toronto.

LEAD SHEET
Toronto Plate Glass Importing Co., Limited, Toronto.

LEAD PIPE
*The Steel Co. of Canada, Limited, Hamilton, Ont.
Toronto Plate Glass Importing Co., Limited, Toronto.
*The Canada Metal Co., Toronto.
*United Brass & Lead, Ltd., Toronto

LEATHER
The Robson Leather Co., Limited, Oshawa, Ont.

LEATHER, bookbinders'
Clarke & Clarke, Ltd., Toronto.

LEATHER, fancy
Clarke & Clarke, Ltd., Toronto.

LEATHER GOODS
Lamontagne, Ltd., Montreal, Que.

LEATHER, patent colt and side leather
*A. R. Clarke & Co., Ltd., Toronto.

LEATHER, sheep skin, etc.
Clarke & Clarke, Ltd., Toronto.

LEATHER, upholstering
Clarke & Clarke, Ltd., Toronto.

LEATHER, upper
A. Davis & Son, Ltd., Kingston, Ont.

LIGHTS (marine, side and port)
*Crouse-Hinds Co., Ltd., Toronto.

LINK BELT, Ewart, and sawmill riveted
*Canadian Link-Belt Co., Toronto.

LINK BELTING
*The Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

LINOLEUM
Dominion Oil Cloth Co., Limited, Montreal, Que.

LITHOGRAPHED BUSINESS STATIONERY
Business Systems, Ltd., Toronto.

LITHOGRAPHED TIN WARE
*MacDonald Mfg. Co., Limited, Toronto.

LITHOGRAPHERS
American Bank Note Company, Ottawa, Ont.
Harris Lithographing Co., Toronto.

LOCKERS
*Canada Wire & Iron Works Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*Geo. B. Meadows, Wire, Iron and Brass Works Co., Toronto.

LOCOMOTIVE BLOCKS
Standard Clay Products, Limited, St. Johns, Que.

LOCOMOTIVES, industrial
*Montreal Locomotive Works, Ltd., Montreal, Que.

LOCOMOTIVE & MARINE BRASS WORKS
The James Morrison Brass Mfg. Co., Limited, Toronto.
*United Brass & Lead, Ltd., Toronto

LOOSE LEAF, BINDERS AND FORMS
Business Systems, Ltd., Toronto.

LOOSE LEAF SYSTEMS
Copeland-Chatterson Co., Limited, Brampton, Ont.

LOOSE LEAF SUPPLIES
The Esdale Press, Ltd., Edmonton.

LUBRICATORS, steam sight feed
Penberthy Injector Co., Limited, Windsor, Ont.

LUGS, for silos and water tanks
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Otterville Mfg. Co., Ltd., Otterville, Ont.

LUMBER
*Brown Corporation, La Tuque, Que.
The C. Beck Mfg. Co., Ltd., Penetanguishene, Ont.
G. & J. Esplen, Montreal, Que.

LUMBER, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

LUMBER, spruce and pine, cedar railway ties and shingles
Bathurst Lumber Co., Ltd., Bathurst, N.B.

LUMBERING BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

LUMBER, red pine and spruce
Gillies Bros., Ltd., Braeside, Ont.

LUMBER, spruce, fir, larch and cedar
Fernie Lumber Co., Ltd., Fernie, B.C.

LUMBER, white pine
Gillies Bros., Ltd., Braeside, Ont.

MACHINE KNIVES
*Galt Knife Co., Ltd.
*E. C. Atkins & Co., Inc., Hamilton, Ont.

MACHINE TOOLS
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.
*United Brass & Lead, Ltd., Toronto

MACHINE WORK, special
*United Brass & Lead, Ltd., Toronto

MACHINERY, conveying
*Canadian Link-Belt Co., Toronto.
*Canadian Mathews Gravity Carrier Co., Limited, Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

MACHINERY, flour mill
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

MACHINERY, grinding
*Canadian Hart Wheels, Limited, Hamilton, Ont.

MACHINERY, hoisting, etc.
*Polson Iron Works, Limited, Toronto.
J. & R. Weir, Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Northern Crane Works, Limited, Walkerville, Ont.

MACHINERY, ice cream
J. J. McLaughlin, Ltd. Toronto.

MACHINERY, iron working
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.

MACHINERY, pulp mill
*The Waterous Engine Works Co., Limited. Brantford. Ont.

MACHINERY, punching and shearing.
*Canada Machinery Corporation, Limited, Galt, Ont.
*John Bertram & Sons Co., Ltd., Dundas, Ont.

MACHINERY, railroad and car-shop
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*John Bertram & Sons Co., Ltd., Dundas, Ont.

MACHINERY, roadmaking
Sawyer-Massey Co., Limited, Hamilton, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

MACHINERY, sawmill
The E. Long Mfg. Co., Limited, Orillia, Ont.
P. Payette & Co., Pentanguishene, Ont.
W. P. Plant, Hastings, Ont.
*The Waterous Engine Works Co., Limited, Brantford, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.

MACHINERY, sheet metal working
Brown, Boggs Co., Ltd., Hamilton, Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.

MACHINERY, special
Bawden Machine Co., Limited, Toronto.

MACHINERY, tannery
W. P. Plant, Hastings, Ont.

*For Display Advertisement see Index, Pages 1715-1716

MACHINERY, transmission
*Canadian Bond Hanger and Coupling Co., Ltd., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*Goldie & McCulloch Co., Limited, Galt, Ont.

MACHINERY, woodworking
*Canada Machinery Corporation, Limited, Galt, Ont.
*Yates, P. B., Machine Co., Ltd., Hamilton, Ont.
Preston Woodworking Machinery Co., Ltd., Preston.
*The Waterous Engine Works Co., Limited, Brantford, Ont.

MACHINE WRENCHES
*Canadian Billings & Spencer, Ltd., Welland, Ont.

MACHINES, painting
Spramotor Co., London, Ont.

MAGNESITE
Canadian Carbonate Co., Limited, Montreal, Que.

MALT
*Hiram Walker & Sons, Limited, Walkerville, Ont.

MAPLE PRODUCTS
*Maples, Limited, Toronto.

MAPS AND MAP MOUNTING
The Geo. M. Hendry Co., Limited, Toronto.

MARTINGALE RINGS AND SLIDE LOOPS
The Arlington Co. of Canada, Ltd., Toronto.

MATCHERS
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

MATCHES
*The E. B. Eddy Co., Ltd., Hull.

MECHANICAL STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

MEDICINES, patented and pharmaceutical
Dr. Ed. Morin & Cie., Ltd., Quebec.

METAL, babbitt
*Canada Metal Co., Toronto.
*Tallman Brass and Metal Co., Hamilton, Ont.
Alonzo W. Spooner, Limited, Port Hope, Ont.

METAL CEILING
*The Pedlar People Limited, Oshawa.

METAL LATH
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
*The Pedlar People Limited, Oshawa.

METAL PACKING
*Garlock Packing Company, Hamilton, Ont.

METAL, spinning and stamping
The Booth-Coulter Copper and Brass Co., Limited, Toronto.

METAL SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

METAL SHINGLES
*The Pedlar People Limited, Oshawa.

MILK DEALERS' MACHINERY AND SUPPLIES
De Laval Dairy Supply Co., Ltd., Peterboro, Ont.

MILLBOARD, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

MILLING CUTTERS
Pratt and Whitney Company of Canada, Dundas, Ont.

MINING MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.

MITTS AND GLOVES (Indian, tan, red deerskins)
Holt, Renfrew Ltd., Quebec, Que.
A. R. Clarke & Co., Ltd., Toronto.

MOCCASINS AND SLIPPERS (Indian tanned leathers)
Holt, Renfrew Ltd., Quebec, Que.

MORTISERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

MOTOR CARS
*Ford Co. of Canada, Ford, Ont.

MOTORS, electric
*Canadian General Electric Company, Ltd., Toronto.

MOTORS, electric (alternating current)
*Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd Toronto.
*Canadian Crocker-Wheeler Co. Ltd., St. Catharines, Ont.
*T. & H. Electric Co., Hamilton.

MOTORS, electric (direct current)
*Canadian Westinghouse Co., Ltd. Hamilton, Ont.
Consolidated Electric Co., Limited, Toronto.
*Jones & Moore Electric Co., Ltd. Toronto.
*T. & H. Electric Co., Hamilton.

MOTORS, electric (repairing)
Consolidated Electric Co., Limited Toronto.
*T. & H. Electric Co., Hamilton.

MOTORS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

MOULDERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

NAILS
*The Steel Co. of Canada, Limited Hamilton, Ont.

NAILS, copper
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.

NAILS, wire
Parmenter and Bulloch Co., Ltd., Gananoque, Ont.
The Graham Nail Works, Toronto

NAPHTHA
*The Imperial Oil Co., Limited Toronto.

NICKEL OXIDE
Coniagas Reduction Co., Limited St. Catharines, Ont.

NUTS
*John Morrow Screw & Nut Co., Limited, Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto

OAKUM, plumbers, Canadian Navy
Factory Waste and Metal Co., Montreal, Que.
*Scythes & Co., Ltd., Toronto.

OAT CRUSHERS AND FLAKERS
J. Fleury's Sons, Aurora, Ont.

OFFICE DESKS
*Goderich Organ Co., Goderich, Ont.

OFFICE EQUIPMENT
*Office Specialty Co., Newmarket, Ont.

OFFICE FURNITURE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

OILS
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
Sherwin-Williams Co. of Canada, Limited, Montreal, Que.

OIL FILTRATION AND CIRCULATING SYSTEMS
S. F. Bowser & Co., Toronto.

OIL STORAGE SYSTEMS, self-measuring
S. F. Bowser & Co., Toronto.

OIL COMPANIES
*Canadian Oil Cos., Toronto.
Commercial Oil Co., Ltd., Hamilton, Ont.
*Imperial Oil Co., Toronto.

OILS (Petroleum products)
*British American Oil Co., Limited, Toronto.
*The Imperial Oil Co., Limited, Toronto.

OILS, road
*Paterson Manufacturing Company, Toronto and Montreal.

OILCLOTHS, floor and table
Dominion Oil Cloth Co., Limited, Montreal, Que.

ORGANS
*Goderich Organ Co., Goderich, Ont.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.
Thomas Organ & Piano Co., Woodstock, Ont.

ORGANS, pipe
Casavant Freres, St. Hyacinthe, Que.
Karn-Morris Piano and Organ Co., Ltd., Woodstock, Ont.

ORGANS, parlor
*Goderich Organ Co., Goderich, Ont.

ORNAMENTAL IRON WORK
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Dennis Wire & Iron Works Co., London, Ont.
*The Geo. B. Meadows, Toronto Iron and Brass Goods Works Co., Limited, Toronto.
*McGregor & McIntyre, Ltd., Toronto.

OVENS, portable bake
Bedford Stove Co., Bedford, Que.
Mackenzie & Co., Ottawa, Ont.
Peerless Overall Co., Rock Island, Que.
Walker Pant and Shirt Co., Walkerville and Chatham, Ont.
The Standard Shirt Co., Limited, Montreal, Que.

OVERCOATINGS
Rosamond Woollen Co., Almonte, Ont.

OVERHEAD RUNWAYS
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Richards-Wilcox Canadian Co., Limited, London, Ont.

OXY-ACETYLENE WELDING
*L'Air Liquide Society, Montreal.
*The Prest-O-Lite Co., Inc., Toronto.

OXYGEN
*L'Air Liquide Society, Montreal.

PACKERS, parchment papers, discs, shavings
*Beveridge Paper Co., Limited, Montreal.

PACKING BOXES
Barchard & Co., Limited, Toronto.

PACKING, engine
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Co., Hamilton.

PACKING, rubber
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Limited.
Jenkins Bros., Ltd., Montreal, Que.

PAILS AND TUBS, wooden
The C. Beck Mfg. Co., Limited, Penetanguishene, Ont.

PAINTERS' SUPPLIES
A. Muirhead Co., Ltd., Toronto.

PAINTS
R. C. Jamieson & Co., Limited, Montreal, Que.

PAINTS and VARNISHES
A. Muirhead Co., Ltd., Toronto.
Benjamin Moore & Co., Limited, Toronto.
Standard Paint & Varnish Co., Ltd., Windsor, Ont.
The Imperial Varnish & Color Co., Limited, Toronto.
The Staneland Co., Ltd., Victoria, B.C.
A. Ramsay & Sons Co., Montreal, Que.
Standard Paint Co. of Canada, Limited, Montreal, Que.

PAINTS, barn and bridge
Standard Paint & Varnish Co., Ltd., Windsor, Ont.

PAINTS, preservative
Standard Paint Co. of Canada, Limited, Montreal, Que.
*Paterson Manufacturing Company, Toronto and Montreal.

PANELBOARDS
*Crouse-Hinds Co., Ltd., Toronto.

PAPER BAGS
*Beveridge Paper Co., Limited, Montreal.

PAPER, book
Barber Paper & Coating Mills, Ltd., Georgetown, Ont.

PAPER BOXES
King Paper Box Co., Ltd., Montreal, Que.
*Rudd Paper Box Co., Limited, Toronto.

PAPER, coated, book and label
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, coated box board
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, coated cover
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, envelope
Provincial Paper Mills Limited, Georgetown, Ont.
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, enamelled blotting
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, kraft and all wrappings, printings and specialities
*Beveridge Paper Co., Limited, Montreal.

PAPER, label
*Provincial Paper Mills, Limited, Georgetown, Ont.

PAPER, ledger
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Limited, Montreal, Que.
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, news
*The Riordon Pulp and Paper Co., Montreal, Que.

PAPER, super-book
The Toronto Paper Manufacturing Co., Cornwall, Ont.

PAPER, wall
Stauntons, Ltd., Toronto.

PAPER, Waxed
Business Systems, Ltd., Toronto.

PAPER, wrapping, printing and specialties
*Beveridge Paper Co., Ltd., Montreal.
*The Riordon Pulp and Paper Co., Montreal, Que.

PAPER, writing
The Toronto Paper Manufacturing Co., Cornwall, Ont.
Howard Smith Paper Mills, Limited, Montreal.
*Rolland Paper Co., Limited, Montreal, Que.

PAPERS, bond
*Howard Smith Paper Mills, Ltd., Montreal.
*Rolland Paper Co., Ltd., Montreal, Que.

PAPERS, building
Bathurst Lumber Co., Ltd., Bathurst, N.B.
*The Riordon Pulp and Paper Co., Montreal, Que.
Standard Paint Co. of Canada, Ltd., Montreal, Que.

PARK SEATS
Stratford Mfg. Co., Ltd., Stratford, Ont.

PARLOR SUNDRIES
The Geo. McLagan Furniture Co., Limited, Stratford, Ont.

PATENTS
Fetherstonhaugh & Co., Toronto.
Ridout and Maybee, Toronto.

PATENT LITIGATION
Ridout and Maybee, Toronto.

PAY ROLL AUDITS
*International Business Machines, Limited, Toronto.

PEAS AND BEANS FOR SEED
W. P. Niles, Ltd., Wellington, Ont.

PERFORATED METALS
*Canada Wire & Iron Goods Co., Hamilton, Ont.

PERFORATED MUSIC ROLLS
The Otto Higel Co., Ltd., Toronto.

PERFUMES AND TOILET PREPARATIONS
Sovereign Perfumes Ltd., Toronto.

PETROLEUM PRODUCTS
*The Imperial Oil Co., Limited, Toronto.

PHOTOMAILERS
*The Thompson & Norris Co. of Canada, Ltd., Niagara Falls, Ont.

PIANOS
Dominion Organ & Piano Co,, Ltd., Bowmanville, Ont.
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIANO ACTIONS
The Otto Higel Co., Ltd., Toronto.

PIANO KEYS
The Otto Higel Co., Ltd., Toronto.

PIANOS, player
*Gourlay, Winter and Leeming, Toronto.
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.

PIANO, player actions
The Otto Higel Co., Ltd., Toronto.

PIANO STOOLS and BENCHES
*Goderich Organ Co., Goderich, Ont.

PIG IRON
*The Steel Co. of Canada, Limited, Hamilton, Ont.

PINE DOORS, SASH, MOULDINGS, ETC.
Wilson Bros., Limited, Collingwood, Ont.

PINS, society, emblems and badges
Caron Bros., Montreal, Que.

*For Display Advertisement see Index, Pages 1715-1716

PIPE, cast iron, for water and gas
National Iron Works, Ltd., Toronto.
PIPE COUPLINGS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
PIPE COVERINGS
*Eureka Mineral Wood & Asbestos Co., Toronto.
PIPE ORGANS
Karn-Morris Piano and Organ Co., Limited, Woodstock, Ont.
PIPES, culvert
Standard Clay Products, Ltd., St. Johns, Que.
*The Pedlar People Limited, Oshawa.
PIPE AND NIPPLES black and galvanized
*Canadian Tube & Iron Co., Ltd., Montreal, Que.
PIPE, sewer
Hamilton and Toronto Sewer Pipe Co., Limited, Hamilton, Ont.
Standard Clay Products, Ltd., St. Johns, Que.
PIPE, soil and fittings
Authes Foundry, Ltd., Toronto and Winnipeg.
Warden King Lt., Montreal, Que.
PIPE AND TUBES, wrought
*Page-Hersey Iron Tube and Lead Co., Ltd., Toronto.
PIPE, threading and cutting off machines
John H. Hall & Sons, Limited, Brantford, Ont.
PISTON RODS
*The Canadian Drawn Steel Co., Limited, Hamilton, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
PLANERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
PLANING MILLS
G. & J. Esplen, Montreal, Que.
PLASTERING TROWELS
E. C. Atkins & Co., Inc., Hamilton, Ont.
PLOWS
J. Fleury's Sons, Aurora, Ont.
PLUGS
*Crouse-Hinds Co., Ltd., Toronto.
PLUMBERS' SUPPLIES
The Garth Co., Montreal, Que.
The James Morrison Brass Mfg Co., Ltd., Toronto.
*United Brass & Lead, Ltd., Toronto
PLUMBING APPLIANCES
Standard Sanitary Mfg. Co., Ltd., Limited, Toronto.
PLUMBING SUPPLIES
Toronto Plate Glass Importing Co., Limited, Toronto.
PNEUMATIC DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
PNEUMATIC MACHINERY
*Canadian Ingersol-Rand Co., Sherbrooke, P.Q.
POLE LINE MATERIAL (wooden insulator top pins, side blocks, pole steps, cross arms)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.
POLES, Flag
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
POLES, telegraph and telephone, cedar
Fernie Lumber Co., Ltd., Fernie, B.C.
PORK PACKERS AND CHEESE EXPORTERS
The Ingersoll Packing Co., Limited, Ingersoll, Ont.
POSTS, split cedar fence
Fernie Lumber Co., Ltd., Fernie, B.C.
POULTRY SUPPLIES AND MEDICINES
Lee Mfg. Co., Ltd., Pembroke, Ont.
POWDER, blasting
Canadian Explosives, Ltd., Montreal, Que.
POWER PRESSES
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRESERVATIVE PAINT
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
PRESERVATIVE PAINT FOR BOILERS
Beveridge Paper Co., Limited, Montreal.
PRESSES, baling and filter
*William R. Perrin, Ltd., Toronto.
PRESSES, hydraulic
Hydraulic Machinery Co., Limited, Montreal.
PRESSES, sheet metal stamping
Brown, Boggs Co., Ltd., Hamilton, Ont.
*Canada Machinery Corporation, Limited, Galt, Ont.
PRESSES, veneer
*Canada Machinery Corporation, Limited, Galt, Ont.
Hydraulic Machinery Co., Limited, Montreal.
*William R. Perrin, Ltd., Toronto.
PRINTERS
Rous & Mann, Ltd., Toronto.
PRINTING AND LITHOGRAPHING
Lawson & Jones, Limited, London Ont.
PULLEYS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PULLEYS, wood split.
*Bernard Industrial Co., Fortierville, P.Q.
PULP, bleached sulphite
The Edward Partington Pulp and Paper Co., St. John, N.B.
PULP, sulphate and sulphite
Bathurst Lumber Co., Ltd., Bathurst, N.B.
PULP
*Brown Corporation, La Tuque, Que.
PUMPS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Canadian Allis-Chalmers, Limited Toronto.
*Bawden Machine Co., Ltd., Toronto.
*Canadian Fairbanks-Morse Company, Limited, Montreal, Que.
*Darling Bros., Ltd., Montreal.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
Spramotor Co., London, Ont.
PUMPS, boiler feed
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Bawden Machine Co., Ltd., Toronto.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
PUMPS, centrifugal
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*M. Beatty & Sons, Ltd., Welland, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, iron
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
*Waterous Engine Works Co., Ltd., Brantford, Ont.
PUMPS, turbine and reciprocating
*Bawden Machine Co., Ltd., Toronto.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
John McDougall, Caledonian Iron Works Co., Ltd., Montreal, Que.
PUNCHES
*John Whitfield Co., Toronto.
*Pratt & Whitney Co., Dundas.
PYROMETERS
*Canadian Hoskins Co., Walkerville, Ont.
RADIATORS
Taylor-Forbes Co., Limited, Guelph, Ont.
Warden King, Ltd., Montreal, Que.
RAILINGS, brass and iron
*Dennis Wire & Iron Works Co., London, Ont.
*United Brass & Lead, Ltd., Toronto
RAILS, light
Hammant Steel Car and Engineering Works, Hamilton.
RAILWAY SIGNAL APPLIANCES
General Railway Signal Co. of Canada, Ltd., Montreal, Que.
RAILWAY SUPPLIES
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
B. J. Coghlin Co., Ltd., Montreal, Que.
RAILWAY TARIFF BINDERS
The Esdale Press Ltd., Edmonton.
READY-TO-WEAR GARMENTS, LADIES'
H. C. Boulter Co., Ltd., Toronto.
REAMERS
*Pratt & Whitney Co., Dundas.
*Butterfield & Co., Rock Island, P.Q.
RECEPTACLES
*Crouse-Hinds Co., Ltd., Toronto.
"REDWOOD" lager
E. L. Drewry, Winnipeg, Man.
REED AND RATTAN GOODS
Canada Furniture Mfgs., Limited, Woodstock, Ont.
REFRIGERATORS
Sanderson-Harold Co., Ltd., Paris, Ont.
Lee Mfg. Co., Ltd., Pembroke, Ont.
REFRIGERATING MACHINERY
The Linde Canadian Refrigeration Co., Ltd., Montreal, Que.
REFRIGERATORS, store, homes and institutions
Ham & Nott Co., Ltd., Brantford, Ont.
John Hillock & Co., Ltd., Toronto.
REINFORCEMENT BARS
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REINFORCEMENT FOR CONCRETE
*Canada Wire & Iron Goods Co., Hamilton, Ont.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.
REINFORCEMENT FOR CONCRETE ROOFING, Metal.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co., Ltd., Walkerville.
REVOLVING DOORS
*A. B. Ormsby Co., Ltd., Toronto.
RINGS, gold
Caron Bros., Montreal, Que.
RIVETERS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
RIVETS
*Canadian Tube & Iron Co., Ltd.,
*The Steel Co. of Canada, Limited, Hamilton, Ont.
RIVETS, bifurcated and tubular
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
RIVETS AND BURRS, iron, copper and brass
Parmenter & Bulloch Co., Limited, Gananoque, Ont.
ROCK DRILLS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
ROLL PRINTING
*Autographic Register Co., Ltd., Montreal.
Business Systems, Ltd., Toronto.
ROOFING, ready to lay
Standard Paint Co. of Canada, Ltd., Montreal, Que.
*Paterson Mfg. Co., Toronto and Montreal.
ROOF TRUSSES
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal, Que.
ROPE
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
ROPE, cotton
Hamilton Cotton Co., Hamilton, Ont.
RUBBER FOOTWEAR
Ames Holden, McCready, Limited, Montreal, Que.
*Gutta Percha & Rubber, Ltd.
The Miner Rubber Co., Limited, Granby, Que.
RUBBER GOODS
*Canadian Consolidated Rubber Co., Limited, Montreal, Que.
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.
RUBBER MOULDS
Bawden Machine Co., Ltd., Toronto.
RUBBER PACKING
*Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Garlock Packing Company, Hamilton, Ont.
RULES
The Lufkin Rule Co. of Canada, Ltd., Windsor, Ont.
RYE
The St. Hyacinthe Distillery Co., Ltd., St. Hyacinthe, Que.
SADDLERY HARDWARE
*Dominion Forge and Stamping Co., Walkerville, Ont.
SAFES
*Goldie & McCulloch Co., Limited, Galt, Ont.
J. & J. Taylor, Ltd., Toronto.
SAMPLE CASES
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
J. Eveleigh & Co., Ltd., Montreal, Que.
SAND RAMMERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
SANDPAPER
*Delany and Pettit, Ltd., Toronto.
SASH CORD, cotton
Hamilton Cotton Co., Hamilton, Ont.
SALT
Canadian Salt Co., Ltd., Windsor, Ont.
SANITARY PAPER TOWELS
*E. B. Eddy Co., Ltd., Hull, Que.
SAW SHARPENING MACHINERY
*Canadian Hart Wheels, Limited, Hamilton, Ont.
SAWS
*E. C. Atkins & Co., Ltd., Hamilton.
Henry Disston & Sons, Limited, Toronto.
Shurly & Deitrich, Galt, Ont.
SAWS, cross-cut and band
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWS, circular mill
Shurly & Deitrich, Galt, Ont.
SAWS, hack
*Victor Saw Works, Ltd., Hamilton, Ont.
SAWS, of all kinds
Simonds Canada Saw Co., Limited, Montreal, Que.
SAWS, rip
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.
Shurly & Deitrich, Galt, Ont.
SAWMILLS
G. & J. Esplen, Montreal, Que.
*The Waterous Engine Works Co., Ltd., Brantford, Ont.
SAW MILL MACHINERY
*Canadian Allis-Chalmers, Limited, Toronto.
SAWS, specialties
*Victor Saw Works, Ltd., Hamilton, Ont.
SCALES
The Gurney Scale Co., Hamilton, Ont.
SCALES, counter
The Gurney Scale Co., Hamilton, Ont.
SCALES, railway track, etc.
The Gurney Scale Co., Hamilton, Ont.
SCREENS
*Canada Wire & Iron Goods Co., Hamilton, Ont.
SCREEN DOORS AND WINDOWS
Sanderson-Harold Co., Ltd., Paris, Ont.
Ham & Nott Co., Ltd., Brantford, Ont.
SCREWS
*John Morrow Screw & Nut Co., Ltd., Ingersoll, Ont.
*The National Acme Mfg. Co., Montreal, Que.
*The Steel Co. of Canada, Limited, Hamilton, Ont.
*United Brass & Lead, Ltd., Toronto
SCREW PLATES
*Butterfield & Co., Rock Island, P.Q.
SECURITIES, engraved
American Bank Note Co., Ottawa, Ont.
SERGES
Rosamond Woollen Co., Almonte, Ont.

SHAFTING
Canada Forge Co., Ltd., Welland, Ont.
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Drawn Steel Co., Ltd., Hamilton, Ont.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*Union Drawn Steel Co., Limited, Hamilton, Ont.
*Dodge Mfg. Co., Ltd., Toronto.

SHANTY BLANKETS
Slingsby Mfg. Co., Ltd., Brantford, Ont.

SHAPERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SHEAR BLADES, iron
*Galt Knife Co., Ltd.
The Peter Hay Knife Co., Limited, Galt, Ont.

SHEATHING
*Paterson Mfg. Co., Toronto and Montreal.

SHEATHING, asbestos corrugated
*Eureka Mineral Wool & Asbestos Co., Toronto.

SHEET METAL STAMPINGS
Acme Stamping & Tool Works, Ltd., Hamilton, Ont.
*The Pedlar People Limited, Oshawa.
*W. H. Banfield & Sons, Ltd. Toronto.

SHEETS, galvanized
*Dominion Sheet Metal Co., Ltd., Hamilton.
*The Pedlar People Limited, Oshawa.

SHINGLES
Bathurst Lumber Co., Ltd., Bathurst, N.B.

SHINGLE SAWS
*E. C. Atkins & Co., Inc., Hamilton, Ont.

SHIRTS
MacKenzie & Co., Ottawa, Ont.
John W. Peck & Co., Ltd., Montreal, Que.

SHIRTS, workmen's
*A. R. Clarke & Co., Ltd., Toronto.

SHOE PEGWOOD
O. Chalifour, Quebec, Que.

SHOE LININGS
Galt Knitting Co., Ltd., Galt, Ont.

SHOES, running and athletic
Ames-Holden-McCready, Ltd., Montreal, Que.

SHOOKS
Barchard & Co., Ltd., Montreal, Que.

SILENT CHAIN DRIVES
*Canadian Link-Belt Co., Toronto.

SILVER BULLION
Coniagas Reduction Co., Ltd., St. Catharines, Ont.

SILVERSMITH
Canadian Wm. A. Rogers, Ltd., Toronto.
Standard Silver Co., Toronto.

SILVERWARE, sterling
Roden Bros., Limited, Toronto.

SINKS, enamelled
Amherst Foundry Co., Limited, Amherst, N.S.

SKATES, figure
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, genuine Acme
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, hockey
Canada Cycle and Motor Co., Ltd., Toronto.

SKATES, ice
Canada Cycle and Motor Co., Ltd., Toronto.

SKATE SHARPENERS
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.

SKIFFS
Peterboro Canoe Co., Ltd., Peterboro, Ont.

SKYLIGHTS
*A. B. Ormsby Co., Ltd., Toronto.
*The Pedlar People Limited, Oshawa.

SLEIGHS
Tudhope-Anderson Co., Limited, Orillia, Ont.

SLIPPERS
Ames-Holden-McCready, Ltd., Montreal, Que.

SLOTTERS
*Canada Machinery Corporation, Limited, Galt, Ont.

SMELTER LINING
*Beveridge Paper Co., Ltd., Montreal.

SMOKE CONSUMERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

SMOKE-STACKS
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

SOAPS
J. Barsalou & Co., Ltd., Montreal, Que.

SOAP (soft, oil)
The Imperial Varnish & Color Co. Ltd., Toronto.
Sherwin-Williams Co. of Canada Limited, Montreal, Que.

SOCKETS
*Crouse-Hinds Co., Ltd., Toronto.

SODA WATER FOUNTAINS
J. J. McLaughlin, Ltd., Toronto.

SOIL PIPE
Anthes Foundry, Ltd., Toronto.

SOLDER
Alonzo W. Spooner, Ltd., Port Hope, Ont.
*Canada Metal Co., Toronto.
*Tallman Brass & Metal Co., Hamilton, Ont.

SOLDER, silver
Geo. H. Lees & Co., Hamilton.

SOLDER, wire and bar
*American Can Co., Montreal, and Hamilton.

SOLDERING IRONS AND COPPERS
Brown, Boggs Co., Ltd., Hamilton, Ont.

SNOWSHOES
Holt, Renfrew, Ltd., Quebec, Que.

SPARK PLUGS
Canadian Carbon Co., Limited Toronto.

SPECIAL MACHINERY
Globe Engineering Co., Ltd., Hamilton

SPIKES, railway and marine
Starr Mfg. Co., Ltd., Dartmouth, N.S.

SPIRAL CONVEYORS
*Canadian Mathews Gravity Carrier Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.

SPLIT PEAS
H. Murton, Ltd., Guelph, Ont.

SPIRITS
*Hiram Walker & Sons, Limited, Walkerville, Ont.

SPORTING MEDALS AND TROPHIES
Roden Bros., Limited, Toronto.

SPRAYERS
Spramotor Co., London, Ont.

SPRING COTTERS
*Richards-Wilcox Canadian Co., Limited, London, Ont.

SPRINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
B. J. Coghlin Co., Ltd., Montreal, Que.
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINGS, carriage and automobile
Guelph Spring & Axle Co., Ltd., Guelph, Ont.

SPRINKLER SYSTEMS
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
*General Fire Equipment Co., Ltd., Toronto.
*Purdy, Mansell, Ltd., Toronto.
*Vogel Co. of Canada, Ltd., Montreal, Que.

SPROCKET WHEELS
*Canadian Link Belt Co., Ltd., Toronto.

STAINS
R. C. Jamieson & Co., Ltd., Montreal, Que.

STAINS, creosote shingle
A. Muirhead Co., Ltd., Toronto.

STAMPINGS
*Dominion Forge and Stamping Co., Ltd., Walkerville, Ont.

STAMPS, steel, brass and rubber
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STAMP MILLS
*Jenckes Machine Co., Sherbrooke.

STATIONERY, office
Harris Lithographing Co., Toronto.

STEAM PIPE and BOILER COVERINGS, asbestos
*Eureka Mineral Wool & Asbestos Co., Toronto.

STEAM SHOVELS
*M. Beatty & Sons, Ltd., Welland, Ont.

STEAM SPECIALTIES
*C. A. Dunham Co., Ltd., Toronto.
*Darling Bros., Ltd., Montreal.
*Sheldons, Ltd., Galt.

STEAM TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Manufacturing Co., Limited, Woodstock.

STEEL
*Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.

STEEL BILLETS AND BLOOMS
*The Steel Company of Canada, Limited, Hamilton.

STEEL BUILDINGS
*The Canadian Bridge Co., Ltd., Walkerville, Ont.
*Dominion Bridge Co., Ltd., Montreal.
*McGregor & McIntyre, Ltd., Toronto.
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*The Pedlar People Limited, Oshawa.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL CABINETS
J. & J. Taylor, Ltd., Toronto.

STEEL CASTINGS
*Canadian Steel Foundries, Ltd., Montreal, Que.
*Dominion Steel Foundry Co., Ltd., Hamilton.

STEEL FILING EQUIPMENT
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.

STEEL PLATE WORK
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Toronto Iron Works, Ltd., Toronto.

STEEL RODS
*The Steel Co. of Canada, Ltd., Hamilton.

STEEL SASH
*Dennis Wire & Iron Works Co., London.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont.

STEEL SHELVING
*Dennis Wire & Iron Works Co., London.

STEEL WIRE RODS
*The Steel Company of Canada, Limited, Hamilton.

STENCILS, brass
Pritchard-Andrews Co. of Ottawa, Ltd., Ottawa, Ont.

STEREOTYPING
Central Press Agency, Toronto

STOKERS
*The Jones Underfeed Stoker Co., Ltd., Toronto.

STOOLS AND BENCHES, piano and organ
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STOOLS, steel factory
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

STONE
The Hagersville Contracting Co., Hagersville, Ont.

STORAGE BATTERIES
*Canadian General Electric Company, Ltd., Toronto.

STORE FITTINGS
The Canadian Office & School Furniture Co., Ltd., Preston, Ont.

STOVES
Smith Foundry Co., Ltd., Fredericton, N.B.
Tudhope-Anderson Co., Limited, Orillia, Ont.
Bedford Stove Co., Bedford, Que.

STOVE LININGS
Standard Clay Products, Ltd., St. Johns, Que.

STOVES AND RANGES
Bedford Stove Co., Bedford, Que.
Lee Mfg. Co., Ltd., Pembroke, Ont.
The Jas. Smart Mfg. Co., Ltd., Brockville, Ont.
McClary Mfg. Co., London, Ont.

STREET LIGHTING FIXTURES
*Crouse-Hinds Co., Ltd., Toronto.

STRETCHERS, lace curtain
*Otterville Mfg. Co., Ltd., Otterville, Ont.

STRUCTURAL STEEL
*Canadian Allis-Chalmers, Limited, Toronto.
*Dominion Bridge Co., Montreal.
*Hamilton Bridge Works Co., Ltd., Hamilton.
*Manitoba Bridge & Iron Works, Ltd., Winnipeg.
*McGregor & McIntyre, Ltd., Toronto.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*The Canadian Bridge Co., Ltd., Walkerville, Ont.

SUIT CASES
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.

SUPPLY DEALERS
*The Foundation Co., Limited, Montreal.

SURFACERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*P. B. Yates Machine Co., Ltd., Hamilton, Ont.

SWITCHBOARDS
*Canadian General Electric Company, Ltd., Toronto.
*Crouse-Hinds Co., Ltd., Toronto.

SWITCHES
*Crouse-Hinds Co., Ltd., Toronto.

SWITCHES, railway
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

SWITCHES AND FROGS
*Canadian Steel Foundries, Ltd., Montreal, Que.

SWITCH STANDS
Canadian Ramapo Iron Works, Ltd., Niagara Falls, Ont.

TABLE COVERS, chenille
Hamilton Cotton Co., Hamilton, Ont.

TANKS
*Toronto Iron Works, Ltd., Toronto.
*Chicago Bridge & Iron Works, Bridgeburg, Ont.
Goold-Shapley-Muir Co., Ltd., Brantford, Ont.
*McKinnon Holmes & Co., Sherbrooke, P.Q.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
*The Goldie & McCullough Co., Ltd., Galt.
*The Waterous Engine Works Co., Ltd., Brantford.

TANKS, steel storage
*Mackinnon, Holmes & Co., Ltd., Sherbrooke, P.Q.
*Steel Trough and Machine Co., Ltd., Tweed, Ont.

TANNERS' SUPPLIES
McClary Mfg. Co., London, Ont.

TAPS
*Butterfield & Co., Rock Island, P.Q.
*Pratt & Whitney Co., Dundas.

TAPES, measuring
The Lufkin Rule Co., of Canada, Ltd., Windsor, Ont.

TELEPHONE ACCESSORIES
*Canadian Independent Telephone Co., Toronto.
*Northern Electric Co., Limited, Montreal, Que.

TENTS
Mackenzie & Co., Ottawa, Canada.
Turner, J. J., & Sons, Peterboro, Ont.
*Scythes & Co., Ltd., Toronto.

TERMINALS, electric cable
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.

TERRA ALBA
*Albert Mfg. Co., Hillsborough, N.B.

TERRA COTTA (architectural)
Toronto Plate Glass Importing Co., Ltd., Toronto.

TEXTILE SUPPLIES (shuttles, bobbins, spools and picker sticks.)
The Lachute Shuttle Co., Limited, Lachute Mills, P.Q.

THUMB SCREWS
*Canadian Billings & Spencer,, Ltd., Welland.

TIE TAMPERS
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

TILING, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TIME RECORDERS
*International Business Machines, Limited, Toronto.

TIRES, bicycle, auto, carriage, truck, motorcycle
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
*Gutta Percha & Rubber, Ltd.

TOOLS, pneumatic
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.

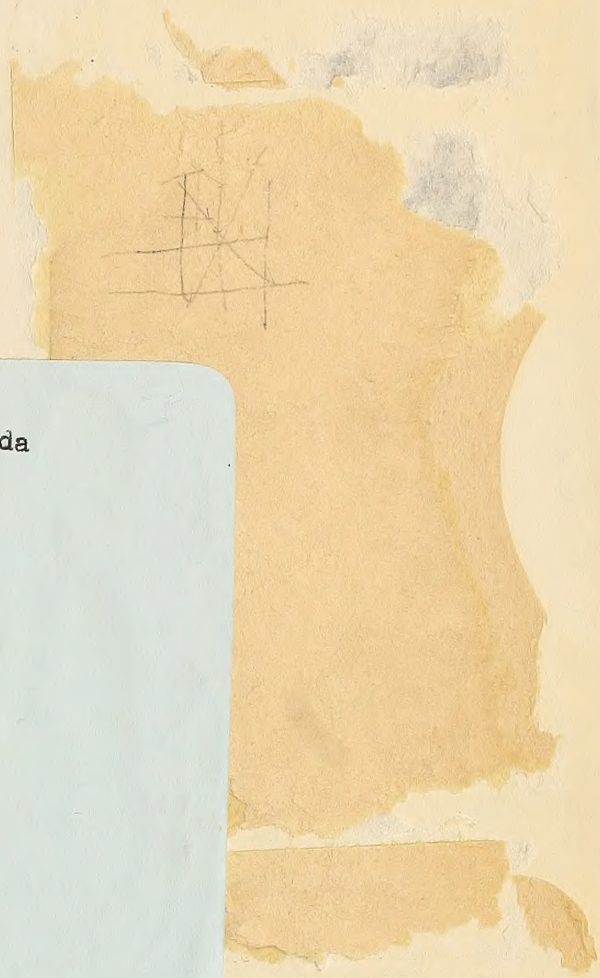
*For Display Advertisement see Index, Pages 1715-1716

TOOLS, track
B. J. Coghlin Co., Ltd., Hamilton, Ont.
TOOLS, sheet metal workers'
Brown, Boggs Co., Ltd., Hamilton.
TRACK, steel, portable
Hammant Steel Car and Engineering Works, Hamilton.
TRACTORS, kerosene and gasoline
*Gilson Manufacturing Co., Ltd., Guelph.
TRADE MARKS AND DESIGNS
Ridout & Maybee, Toronto.
TRANSFORMERS
*Canadian General Electric Company, Ltd., Toronto.
*The Canadian Crocker-Wheeler Co., Limited. St. Catharines.
TRANSLATIONS INTO FRENCH
Raoul Renault, Quebec City.
TRANSMISSION MACHINERY
*Canadian Bond Hanger & Coupling Co., Alexandria, Ont.
*Canadian Link Belt Co., Toronto.
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
*The Waterous Engine Works Co., Ltd., Brantford.
TRAPS
*C. A. Dunham Co., Ltd., Toronto.
*Canadian Morehead Mfg. Co., Woodstock.
TROLLEYS
*Richard-Wilcox Canadian Co., Limited, London, Ont.
*Northern Crane Works, Limited, Walkerville.
TRUCKS
The Gurney Scale Co., Hamilton
*Northern Crane Works, Limited. Walkerville.
TRUCKS, brick, tile and lumber
*Waterous Engine Works Co., Ltd., Brantford.
TRUCKS, fibre and reinforced
*Beveridge Paper Co., Limited, Montreal.
TRUCKS, motor
*National Steel Car Co., Limited, Hamilton.
TRUCKS, warehouse and factory
The W. S. Mahaffy Co., Toronto.
TRUCKS, steel, forge and foundry
Hammant Steel Car and Engineering Works, Hamilton.
TRUCKS FOR OFFICE AND VAULT USE
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
TRUNKS
Lamontagne Ltd., Montreal, Que.
J. Eveleigh & Co., Ltd., Montreal.
The M. Langmuir Mfg. Co. of Toronto, Ltd., Toronto.
TUBING, brass and copper
*Booth-Coulter Copper & Brass Co., Ltd., Toronto.
Canadian Seamless Wire Co., Toronto.
*Tallman Brass and Metal Co, Hamilton, Ont.
TUBING, Fibre
*Beveridge Paper Co., Limited. Montreal.
TUBING, gold and silver
Canadian Seamless Wire Co., Toronto.
TUMBLERS, foundry
*Northern Crane Works, Limited, Walkerville.
*Smart-Turner Machine Co., Ltd., Hamilton, Ont.
TURBINES, steam
*The Canadian Crocker-Wheeler Co., Limited, St. Catharines.
TURPENTINE
*Brown Corporation, La Tuque, Que.
TWEEDS
Rosamond Woollen Co., Almonte Ont.
TWINES
*Doon Twines Ltd., Doon, Ont.
*Shurly & Derrett, Ltd., Toronto.
TWINES, binder
Brantford Cordage Co., Ltd. Brantford, Ont.
TWINES, cotton
Hamilton Cotton Co, Hamilton Ont.
TWIST DRILLS
*John Morrow Screw and Nut Co. Ltd., Ingersoll.
*Pratt and Whitney Co., of Canada Dundas, Ont.
*The Wilt Twist Drill Co., Ltd. Walkerville, Ont
UNDERWEAR
Galt Knitting Co., Ltd., Galt, Ont.
UNDERWEAR, imperial
Kingston Hosiery Co., Ltd., Kingston, Ont.
UNIONS
*Dart Union Co., Ltd., Toronto Ont
*Otterville Mfg. Co., Ltd., Otterville, Ont.
UPHOLSTERED FURNITURE, leather and tapestries
Imperial Rattan Co., Ltd.
VALVES
*Jenkins Bros., Ltd., Montreal.
*Kerr Engine Co, Ltd., Walkerville.
T. McAvity & Sons, Ltd., St. John, N.B.
*Penberthy Injector Co., Ltd., Windsor.
VALVES, for steam and water
*Jenkins Bros., Ltd., Montreal.
*Mueller Mfg. Co., Ltd., Sarnia.
*Penberthy Injector Co., Ltd., Windsor.
*United Brass & Lead, Ltd., Toronto
VALVES, pressure reducing
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, regrinding globe, angle cross checks. swing checks.
*Mueller Mfg. Co., Ltd., Sarnia.
Penberthy Injector Co., Ltd., Windsor, Ont.
VALVES, regulating
*Mueller Mfg. Co., Ltd., Sarnia.
VALVES, rubber
Dunlop Tire & Rubber Goods Co., Ltd., Toronto.
VARNISHES
*Ault & Wiborg Co of Canada, Ltd., Toronto.
Berry Bros., Walkerville, Ont.
R. C. Jamieson & Co, Ltd., Montreal, Que.
VAULT FITTINGS, steel
*Office Specialty Mfg. Co., Ltd., Newmarket, Ont.
VAULTS AND VAULT DOORS
*The Goldie & McCullough Co., Ltd. Galt
J. & J. Taylor, Ltd., Toronto.
VENTILATING APPLIANCES
*Sheldons, Ltd., Galt.
VENTILATING SYSTEMS
Gurney Foundry Co., Ltd., Toronto
VENTILATORS
*A. B. Ormsby, Ltd., Toronto.
*The Pedlar People Limited, Oshawa.
VOLTMETERS AND AMMETERS
*Crouse-Hinds Co., Ltd., Toronto.
WAGONS
TudhopeAnderson Co., Ltd., Orillia.
WALL COPING
Standard Clay Products, Ltd., St Johns, Que.
WASHERS
*The Steel Company of Canada Limited. Hamilton.
*United Brass & Lead, Ltd., Toronto
WASHERS, fibre
*Beveridge Paper Co., Limited Montreal.
WASHERS, plate or wrought
London Rolling Mill Co., Ltd., London, Ont.
WASTE PAPER BASKETS AND ALL RECEPTACLES, fibre
*Beveridge Paper Co., Limited Montreal.
WASTES, wool and cotton
Factory Waste and Metal Co. Montreal, Que.
*Scythes & Co., Ltd., Toronto.
WATERPROOF, cement coating
Benjamin Moore & Co, Ltd., Toronto.
*Beveridge Paper Co., Limited Montreal.
*Paterson Manufacturing Company, Toronto and Montreal.
*Trussed Concrete Steel Co. of Canada, Limited, Walkerville, Ont
WATER WHEELS
*Canadian Allis-Chalmers, Limited, Toronto.
WEBBING, elastic
Hamilton Cotton Co., Hamilton Ont.
WEBBING, non-elastic
Hamilton Cotton Co., Hamilton, Ont.
WELDING APPARATUS AND MATERIALS
*The Prest-O-Lite Company.
WELL-DIGGING TOOLS AND MACHINERY
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WHEELS
*Canadian Car & Foundry Co., Ltd., Montreal, Que
Wheels, corundum
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, emery
*Canadian Hart Wheels, Ltd., Hamilton, Ont.
WHEELS, fibre
*Beveridge Paper Co., Limited, Montreal.
WHEELS, water (impulse type)
John McDougall Caledonian Iron Works Co., Ltd., Montreal Que.
WELL DRILLING TOOLS AND MACHINERY
Oil Well Supply Co, Ltd., Petrolia. Ont.
WHIPS AND LASHES
Lay Whip Co., Rock Island, Que.
WHISKY
*Hiram Walker & Sons, Ltd., Walkerville, Ont.
WHITE ARSENIC
Coniagas Reduction Co., Ltd., St. Catharines, Ont
WHITE LEAD
Brandram-Henderson, Ltd., Montreal, Que.
A. Ramsay & Son Co., Montreal, Que.
WINDMILLS
*Goold-Shapley-Muir Co., Limited, Brantford, Ont.
*Ontario Wind Engine & Pump Co., Ltd., Toronto.
WINDOW SHADES
Daly & Morin, Montreal, Que.
WIRE
*The Steel Company of Canada, Limited, Hamilton.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
The Graham Nail Works, Toronto.
WIRE CLOTH
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, feeder and trolley
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE GUARDS
*Canada Wire & Iron Goods Co., Hamilton.
C. H. Johnston & Sons, Ltd., Montreal, Que.
WIRE, insulated electric
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE, weatherproof
*Northern Electric Co., Limited, Montreal.
*Eugene F. Phillips, Electrical Works, Ltd., Montreal.
*Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont.
WIRE ROPE
*Dominion Wire Rope Co., Ltd., Montreal.
*The B. Greeening Wire Co., Ltd, Hamilton.
WIRE WORK
C. H. Johnson & Sons, Ltd., Montreal, Que.
*Canada Wire & Iron Goods Co., Hamilton.
*The Geo. B. Meadows, Toronto, Iron and Brass Goods Works Co., Ltd., Toronto
WIRING DEVICES
*Crouse-Hinds Co., Ltd., Toronto.
WOOD
Standard Fuel Co., Toronto.
WOOD BORERS
*Canada Machinery Corporation, Limited, Galt, Ont.
*Canadian Ingersoll-Rand Co., Ltd., Montreal, Que.
WOOD PRINTERS
Barchard & Co., Ltd., Toronto.
WOOD PULP, mechanical
La Cie de Pulpe de Chicoutimi, Chicoutimi, Que.
WOOD SPLIT PULLEYS
*Dodge Mfg. Co., Ltd., Toronto.
*The Goldie & McCulloch Co., Ltd., Galt, Ont.
WOOL
*H. V. Andrews, Toronto.
WORSTED COATINGS AND SUITINGS
Rosamond Woollen Co., Almonte, Ont.
WRAPPERS, book, bottle, etc.
*The Thompson & Norris Co., of Canada, Ltd., Niagara Falls, Ont.
WRAPPERS, waterproof paper and twine reinforced
*Beveridge Paper Co., Limited, Montreal.
WROUGHT IRON PIPE
*The Steel Compony of Canada, Ltd., Hamilton.
WROUGHT PIPE
*The Steel Company of Canada, Ltd., Hamilton.
YARNS, cotton
Hamilton Cotton Co., Hamilton, Ont.
ZINC, electrical
*The Canada Metal Co., Toronto.

*For Display Advertisement see Index, Pages 1715-1716

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